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Contents

*Illustrated

A Typical Holding Company

Chicago, Rock Island & Pacific collateral *Railroad* 4's sold down to as low as 45½ on the New York Stock Exchange during the early part of this week. There was more or less responsible talk of a receivership for the Rock Island Company, with a possible default in interest on the *Railroad* company bonds. A reorganization which would wipe out the Rock Island Company, give the holders of *Railroad* company 4's the stock of the *Railway* company, and change the *Railway* company's dividend requirements from a fixed charge to a distribution from profits, would seem to be one of the best things that could happen for the Chicago, Rock Island & Pacific *Railway* Company. The Rock Island Company-C. R. I. & P. *Railroad* tangle is one of the most indefensible holding company within a holding company devices in American railroad history.

A Solution of the Problem

The Chicago, Rock Island & Pacific *Railway* Company, which operates the 8,043 miles of railroad serving 13 states, is a well managed, sound and essentially prosperous railroad property, with great possibilities of future growth in earning power. Its stock is deposited as security for the *Railroad* company 4's, and the only source from which the *Railroad* 4's can pay their *fixed* charge is through the declaration of regular dividends by the *Railway* company. The stock of the *Railroad* company is held by the Rock Island Company, which has $90,888,203 common, and $49,947,450 preferred stock of its own outstanding. The preferred carries control of the board of directors. Phelps, Dodge & Company, which own the El Paso & Southwestern, bought into Rock Island Company preferred about four years ago, and it was said that their purchase was not made because of the exercise by somebody of the art of salesmanship. They have, it is supposed, been steadily acquiring a larger ownership in the preferred stock, and whether or not they have been also acquiring the *Railroad* 4's depends probably on whether they think the property can be reorganized without foreclosing on the *Railway* company's stock. If, however, a strong non-speculative interest, such as that of Phelps, Dodge & Company, should get possession of a working control of *Railway* company stock itself and wipe out the indefensible superstructure, the holders of *Railroad* company bonds might suffer the loss of interest for a few years; but, on the other hand, in the long run would have an equity in the profits of a great railroad property which in the end ought to more than compensate them for their temporary loss.

Cab Signals in France

In France the use of cab signals is making decided progress. It will be recalled that after the disastrous collision on the Paris, Lyons & Mediterranean at Melun, November 4, last, the railway company at once announced that the introduction of cab signals had been decided on several months back. One very good reason for this was that the government had required such action. Public sentiment demanded that something be done, and the government put pressure on all the prominent roads. A letter in another column gives a few details of what has been done. It was, perhaps to be expected that France would be the first country to make a positive move in this matter, for the Northern Railroad of France has had cab signals in service extensively for 25 years. The significant thing is that the officers of the Northern Railroad, and now the government, believe it wise to use, as a "safety device," a mechanism admittedly lacking in what has been deemed an essential element in such devices, namely, the power to reveal its own failures. The Northern Railroad apparatus, as we understand it, makes no pretensions to perfect operation. Is there any likelihood that we in America shall follow the Frenchmen in this acceptance of a standard which theoretically is defective? With us, the idea has been to have an automatic stop, perfect in operation, or nothing. This is the position and attitude of the big roads, and the government has done nothing effectual toward modifying their attitude. With both the railroads and the government the attitude is affected, and the issue clouded, by the feeling that the discipline of enginemen *might* be so improved that our present visual signals would be all-sufficient. Improvement of discipline, however is a thing the progress of which cannot be measured with much accuracy—especially in a case like this, where

discipline is handled at arm's length and where the improvement must be stated in thousandths or ten thousandths of 1 per cent.—and so, every time a bad collision occurs, the complaint is heard that we are making no progress at all. Is France, using devices which at best can only reduce the probability of collisions, more advanced than we? Can we answer this absolutely in the negative and say that the Northern Railroad has misspent its money and that the government is perpetuating a far-reaching error?

A Friendly Word of Warning

Buoyant and optimistic as is the very interesting account of contemporary railway history, which we have the opportunity of publishing elsewhere in this issue, it should, however, be taken with a grain of caution. Canada, with its population no larger than that of the state of New York, built almost as much new mileage in the calendar year 1913 as was built in the entire United States. As Mr. Payne points out, Canada has already the greatest mileage of railroads per inhabitant of any country in the world. Canadians realize as no one else has that, regardless of who owns the securities of railroads, the country through which they run and the owners of the land tributary to them are the real sharers in the prosperity of the roads. It was somewhat this thought that Fairfax Harrison expressed in his confession of faith, if we may call it such, in his Chattanooga address. It is only a very small part of the money taken in by a railroad which does not go directly back into the country which the railroad serves. The danger in Canada, however, is that the people may pay too much for their railroads. Labor has come very high in Canada, especially in the West; the great distances which supplies and materials have had to be transported have made their cost high, and much of the building that has been done has been through territory where the topography is such that the cost per mile has been high. The provinces and the Dominion government have vied with each other in generosity, and in so doing have expanded their credit, if not unduly, certainly on a very large scale. It is of vital importance to the continued prosperity of Canada that wisdom, good judgment and restraint be manifested in the management of the railroads already built and in the planning of new ones, as well as in the attitude assumed by public sentiment toward the roads.

With Alice Through the Looking Glass

Collier's, in its issue of January 24, devotes three editorial paragraphs, to the question of increased railroad rates, that are about as much of a hodge-podge of non-knowledge of rates and faulty logic as has appeared in three consecutive paragraphs for some time. *Collier's* tells us that the transportation of commodities like coal, grain, iron ore, etc., has been developed in this country to a very high degree of efficiency and that the principle of cheap long haul and dear short haul has ruined industry in many portions of the country; that railroad rates are taxes; that railroads ought to be permitted to raise their long distance rates as much as they liked, and that they could not raise them much because such a raise would promptly check the volume of business. By making railroad rates as low as possible "industries are established where they do not belong, to compete with and suppress industries at the natural basis of supplies and power." It used to be supposed by John Stuart Mill and a few others that if artificial barriers were not interposed, commodities would be manufactured at places where their manufacture was the most economical and that the laws of exchange were such that the community as a whole got the benefit of these economies up to the point where transportation costs absorbed such benefits. The lower the transportation cost per mile the greater would be the benefit to the whole community, since this would be in direct proportion to the increase in the possibility of exchange between places of most economical manufacture of one kind of commodity with places where some other commodity was most economically manufactured. It might please the manufacturer of shoes in Denver, Colo., exceedingly to have the freight rate amount to a dollar per pair on shoes shipped from Massachusetts, but would it greatly lower the cost of living to the wearer of shoes in Denver, or for that matter to the Boston consumer of Colorado fruit.

The Road Foreman of Engines

The development of safe and competent enginemen is one of the greatest problems which railway officers have before them for solution. It is a subject that requires careful study; but in studying the problem as a whole, too little consideration is given to the first step toward its solution, the creation of a competent organization of road foremen of engines. It is probably safe to say that nine-tenths of the appointments of road foremen are based primarily on the man's ability as an engineman. Indeed, it is difficult to conceive of a man's making a successful road foreman if he has not previously been a successful runner. But there are other and more important qualifications that demand earnest consideration in the selection of a man for this position. The work of a road foreman is of a nature that requires much more than a mere knowledge of locomotive running, and to carry it out with any degree of success requires, above all else, that the man appointed be temperamentally qualified. The characteristics to be sought in selecting a road foreman, and the considerations in the assigning of his work, are dealt with in the article on this subject which appears elsewhere in this issue.

MAKE THE POLICY OF REGULATION FAIR AND CONSISTENT

ATTENTION is directed once more to the inconsistent policy of regulation of railways followed in this country by the provisions of the bills to amend the Sherman anti-trust law, which have just been introduced in Congress.

In the discussions of the regulation and control of business concerns economists and most leading public men have drawn a distinction between railways and other classes of concerns engaged in interstate commerce. The addresses and articles of President Wilson are typical. The President has opposed the policy advocated by the Progressive party, of permitting industrial concerns to combine and subjecting them to such regulation by commission as the railways are subjected to. Past experience has shown, he has said, that the railways should be dealt with in a special way; that their rates and financing should be regulated and their operations controlled by the Interstate Commerce Commission. On the other hand, according to his theory, the chief purpose of regulation of industrial enterprises should be to maintain active competition. No public body should be authorized to fix prices; restoration of competition is the medicine needed to keep efficiency up and prices down in the industrial field.

In accordance with this theory railways have been subjected to strict regulation of their rates by the Interstate Commerce Commission. It is now proposed to give to the commission corresponding authority over the issuance of securities and physical operation. No railway or combination of railways can now advance a single rate without the tacit or express consent of the commission. With the commission exercising the authority it has, and the authority it is proposed to give it, such competition between railways as it is desired to restore and maintain between industrial concerns must be a practical impossibility. Even if it existed it could not produce any of the

ordinary results of competition without defeating the purposes of the Interstate Commerce Act and nullifying the efforts of the Interstate Commerce Commission to develop and carry out a constructive and beneficial policy of regulation.

If railways were to compete freely in making rates they would necessarily disregard the principles of rate-making which have been laid down by the commission and destroy adjustments of rates which it has fixed for the express purpose of correcting discriminations. Likewise, if, after the commission had been given power to regulate operation and service, the railways should compete in service without restriction they would have to ignore the principles laid down and orders issued by the commission for their guidance and control. But if they are not to compete, then they must reach and carry out agreements regarding rates and service.

And yet not only do not the bills for the amendment of the Sherman act which have been introduced exempt the railways from the operation of that act, but their provisions also specifically apply to transportation.

The attempt to continue to apply to the railways two policies of regulation which are repugnant and mutually destructive, always has resulted in the carriers disregarding either the Interstate Commerce Act and the regulations and orders of the commission or the laws which intended to compel them to compete. The railways in their efforts to comply with the Interstate Commerce act and the orders of the commission are now daily and hourly doing acts that ignore and probably violate the Sherman anti-trust act. When the commission prescribes certain maximum rates the traffic men of the railways get together and agree both as to whether they shall put into effect the exact rates prescribed by the commission as maxima and also what changes they shall make in other but related rates. Having done this, they publish the rates in joint tariffs which they file with the commission and post at their stations. Now, it is quite possible that every act done by them in thus giving effect to the spirit of the orders of the commission is in violation of the anti-trust law. For it will be noted that under the existing law the commission does not prescribe the *exact* rates which the railways must charge, but merely the *highest* rates which they may charge. Any carrier may make rates lower than those prescribed by the commission as maxima; and if the roads were prevented from acting in concert unquestionably different ones of them would fix different rates between the same points on the same commodities and also rates on different commodities or between different points which would not be on relatively the same basis. But, if the roads should thus take individual action, the result, as already intimated, would be a return to the condition of unfair discrimination and rate anarchy which obtained before the Interstate Commerce Commission began strictly to enforce the Interstate Commerce act.

There is not a single man in America with any knowledge of railway affairs who believes that a return to this condition of chaos is desirable. It is only the course followed by the railways in conferring regarding rates and acting in concert that prevents this return to unfair discrimination and chaos. And they can continue to follow this course only by continuing to violate the Sherman anti-trust law, and, if the proposed amendments of the Sherman law are passed, by violating them as well.

It may be said that as the department of justice now permits the railways to go on openly violating the Sherman law there is no reason for apprehension regarding the effects of the proposed legislation; that doubtless the department will let the roads violate it, too. But the department of justice might change its policy. Furthermore, the new legislation would give to every United States district attorney authority to institute criminal proceedings against combinations in restraint of trade and the individual officers of the concerns involved without the authority or consent of the Attorney-General. Therefore, any district attorney who wished to make a record for either professional or political purposes might start a proceeding which would get into serious trouble numerous railway men guilty of no crime except that of doing the things necessary to give effect to the letter and spirit of the Interstate Commerce act.

Railway men need not feel any deep concern regarding the proposed legislation in reference to interlocking directorates. It is doubtful if any measure for the regulation or issuance of securities will be passed which will do as much harm as it will good. Legislation giving the Interstate Commerce Commission somewhat the same authority to regulate construction, maintenance and operation that it now has to regulate rates may be desirable. But every friend of sound and fair regulation may well feel alarmed at the prospect of a continuance of the attempt to apply to railways two distinct and incompatible policies of regulation. Since the commission has been, and is to be given, so much authority over rates, operation and financial management, since it commands to so great an extent the confidence of the American people, why not cease forbidding agreements between railways regarding rates and service and give to the commission authority to determine what agreements the railways may and may not make.

The commission repeatedly has asked for legislation permitting the carriers to make traffic agreements. It was repeatedly asked for by President Roosevelt, and was urged by President Taft. It would have the endorsement, not only of every railway officer, but of practically every economist, shipper and commercial organization in the United States. There is not a rational argument that can be presented against it. Why, then, postpone any longer a step which is necessary to do justice to railway officers and to round out and give full effect to the policy of regulation by commission?

RELIEVING THE INTERSTATE COMMERCE COMMISSION

THE Interstate Commerce Commission is probably the hardest worked body of men in the United States government. Under existing laws it is charged with the regulation of the rates and the making of a physical valuation of all interstate common carriers, the regulation of the safety appliances of railways, the enforcement of the railway hours-of-service law, the investigation of railway accidents, and the performance of numerous other important and onerous duties. It is now proposed to give it general authority to regulate and control the physical construction, maintenance and operation of railways and the issuance of railway securities. It is manifest that the duties and responsibilities of the Commission have been increased more and faster in proportion than the opportunities of its members for living up to them or their compensation for doing so.

The Commission is taking some steps to so modify its organization as to relieve and improve the situation. It is announced that it has appointed William J. Wood, formerly chairman of the Indiana Railroad Commission, and Norman Hines, as special examiners at a salary, it is understood, of $5,000 each. It is also reported that Orville F. Berry, formerly chairman of the Railroad Commission of Illinois, will be given a similar appointment. Messrs. Wood and Berry, while on the Indiana and Illinois commissions, established reputations as fair and able state commissioners. If the Interstate Commerce Commission can secure men of their caliber to serve as examiners, the commissioners themselves can be relieved of much of the work of traveling about the country and taking testimony in cases not of the first importance which they have heretofore performed. This will increase rather than impair the value of the Commission's work and at the same time will make it less onerous for its members.

It has been suggested that Congress should go still farther, and divide the country into districts and create the office of deputy interstate commerce commissioner for each district. The deputy commissioner would then be the court of first resort in his particular district, appeal being allowed to the commission

itself from decisions of his which were unsatisfactory to either party. It would seem that the time has come for the adoption of some such policy. Competent men could probably be secured for deputy commissionerships for a salary of $5,000 to $7,500 a year. If assigned to definite territories they could familiarize themselves thoroughly with the industrial and railway conditions, the rate adjustments, and so on, of their respective districts. They could serve as a conciliating influence between the railways and their patrons and thereby render unnecessary many formal hearings and orders. Doubtless, in many cases, the decisions reached by deputy commissioners after hearings would be satisfactory to both sides, thus making appeals to the Commission itself unnecessary. They would relieve the members of the Commission of a great amount of relatively unimportant work which the Commissioners must now do and leave them more time and energy to devote to their more important duties.

In addition, if the commission should be given authority to regulate railway construction, maintenance and operation, it should be given an appropriation large enough to enable it to employ a board of operating and engineering experts to advise and aid it in dealing with the technical questions that such increase of its authority would bring before it. And by "operating and engineering experts" is meant men with such experience and attainments as command official positions of importance in the operating and engineering departments of railways themselves. If the Commission is to regulate construction, maintenance and operation intelligently, it probably will require the advice and assistance of a body of such experts reporting to it, as well as of the experts of the railways.

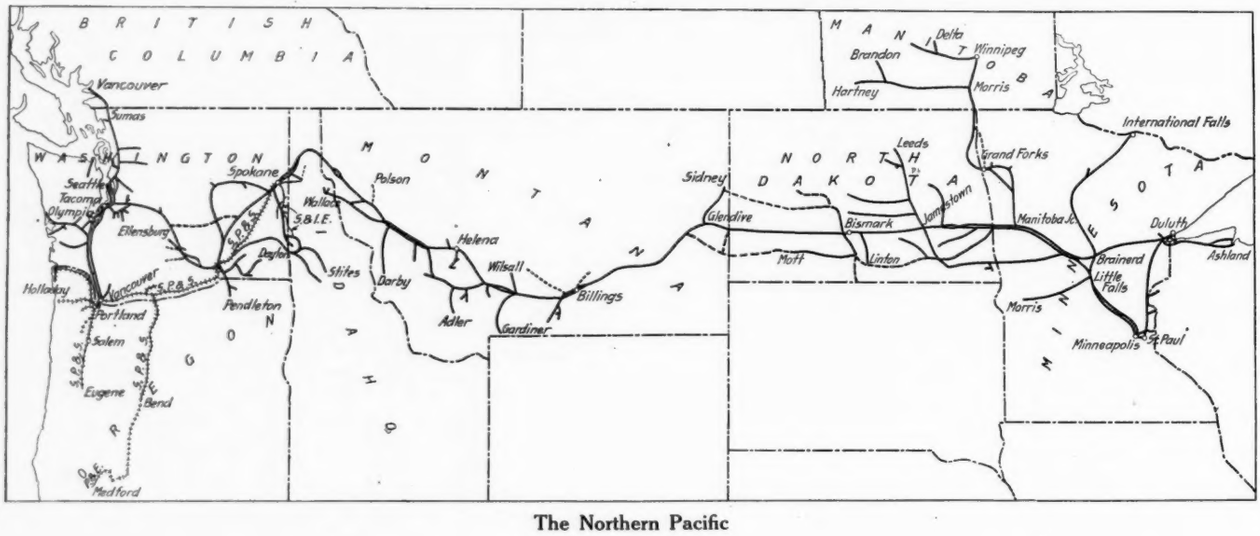
Finally has not the time come when members of the Interstate Commerce Commission should be compensated somewhere near in proportion to the importance and value of the services which they are rendering to the public? Members of the Commission now receive $10,000 a year. The members of the new Illinois Utilities Commission receive the same, while the members of the two New York commissions receive $15,000 each. There is no other body of men in Christendom which decides questions involving so much money as do the members of the Interstate Commerce Commission. As already indicated, they are among the hardest worked servants of the American public; and in proportion to the onerousness of their duties and responsibilities their present salary is inadequate. In view of all the conditions, there is not a single good argument which could be presented against increasing the salary of interstate commerce commissioners to $15,000 a year. Any man who is fit to be a member of the commission is worth $15,000 a year, and much more; and any man who is not worth $15,000 a year ought not to be appointed to the commission.

NORTHERN PACIFIC

IT is an interesting commentary on the closeness of the relationship between the interests of a railroad and the territory served that notwithstanding the fact that the fiscal year ended June 30, 1913, was a bumper year for Northern Pacific earnings, and that the December, 1913, earnings will probably be considerably smaller than the December, 1912, earnings, the showing made in the present (1914) fiscal year is more truly indicative of the great and sound basis on which the Northern Pacific's prosperity rests than was the showing in the fiscal year 1913.

In the year ended June 30, 1913, the Northern Pacific, operating 6,313 miles, or about 280 more than in the previous year, earned $72,676,000, an increase of $9,252,000 more than in 1912. With an increase of $6,515,000 in operating expenses and a very slight increase in fixed charges, there was a surplus available for dividends in 1913 of $21,563,518, as against $19,663,815 in 1912. Very much the largest part of the great increase in business handled was due to bumper crops in the entire territory served by the road, and a substantial gain in lumber business.

Crops in Northern Pacific territory in the fall of 1913 were, compared with those of the previous year, poor; nevertheless the country is more prosperous now than it was a year ago. It would seem off hand that the only interest a railroad company would have in crops would be in the total amount of tonnage which they furnish, since the freight rate does not vary with the price which the farmers obtain for their products. As a matter of fact, however, the railroad company is very much interested in the price which the farmer obtains for his crop, and the prosperity of the community served by the Northern Pacific in the present winter will in the long run result in greater profit to the Northern Pacific than did the abnormal gain in operating revenues in the previous winter. In the fall of 1912 and in the spring of 1913 there was so much rain that, in North Dakota especially, it was impossible to plow. The farmers, therefore, put grain into ground that had simply been harrowed. The crop looked fairly good, but when it came to be thrashed it was found that there was a comparatively small yield of grain. Prices, on the other hand, were high, and the farmers are receiving nearly as much for their comparatively small crop this year as they did for their bumper crop a year ago, and they have been put to nowhere near a corresponding expense to harvest their crops. Whereas a year ago at this time, great as was the prosperity of the Northern Pacific railroad, the farmers of North Dakota and of the territories served were having a hard time to make both ends meet, now the country is in a very prosperous state. North Dakota banks are lending money in New York City, and although, as was previously stated, monthly earnings of the Northern Pacific show a falling off,



The Northern Pacific

they now truly reflect the regular and steady gain which is being made in the business of the Northern Pacific.

It is customary to ascribe the falling off in earnings per mile of the Northern Pacific in 1911 and 1912 to the new competition of the St. Paul extension. As a matter of fact, there were a number of causes for this apparent setback to Northern Pacific earnings of which the new competition of the St. Paul was probably the least important. There had been a period of great activity in building, both industrial and new railroad in the northwest, which came to a close in about 1910; the Hill roads and Harriman roads had been competing with each other in building railroads in Oregon; the Hill roads had just finished building the Spokane, Portland & Seattle, and this work in the United States was coincident with a tremendous boom of railroad building and industrial development in western Canada. What this meant to the northern transcontinental railroads may be surmised from the fact that more than 100,000 fares on the Northern Pacific resulted directly from men being carried to work on the Spokane, Portland & Seattle. After working a few months, or even less, men would leave the states and go into Canada where they were paying 50 cents a day more, and new men would have to be brought on. The Northern Pacific also had to carry probably both materials and men for the western end of the Puget Sound before the road was linked up with the St. Paul. All of this created an artificial heavy traffic in passengers and, to a large extent, also in freight for westbound movement. The end of this building period happened to coincide with the completion of the St. Paul extension and the beginning of operation of this road.

The Northern Pacific dropped back, as it were, to begin again its normal business, and this normal business has shown steady gains. During the period in which gross earnings were showing the result of the cessation of the period of building, the Northern Pacific was cutting its coat according to its cloth. Maintenance expenditures were held down to correspond with the business handled. On the other hand, in 1913, that is the fiscal year ended June 30, 1913, with the very large crops to be moved, the Northern Pacific again cut its coat according to the cloth, only in this case there was an abundance of cloth.

Total operating expenses in 1913 amounted to $44,673,000. This is an increase of $6,515,000 over 1912, and it will be remembered that the increase in operating revenue was $9,252,000. Of the total increase in operating expenses $2,327,000 was in maintenance of way, $1,325,000 in maintenance of equipment, and $2,813,000 in transportation expenses. The increase in maintenance of way expenses brought the total expenditure in 1913 up to $10,188,000, which was higher by 29.59 per cent. than the expenditures in 1912. A good instance of the difference in maintenance program in 1913 and in 1912 is the fact that whereas in 1912 102 miles of main line were relaid with 90-lb. rail, in 1913 389 miles were relaid with 90-lb. rail; and whereas in 1912 there were 1,846,000 ties used in main line renewals, in 1913 there were 2,103,000.

In addition to the large increase in maintenance expenditures, $5,699,000 was spent for real estate, grade revisions and second main track, and additions and betterments. Of this amount $2,769,000 was for the Port Defiance line from Tacoma to Tenio, Wash.; $755,000 for terminal yards, and $646,000 for shops, engine houses and turntables.

The increase in expenditures for maintenance of equipment, amounting to 18.38 per cent., is the result of more mileage made by cars and locomotives in handling a larger business and is due also to the fact that equipment has been put in better condition. Thus, at the end of June, 1913, there were 17.20 per cent. of the locomotives which were not in good condition, as compared with 21.56 per cent. at the end of the previous year. Thus, while in 1912 a little over 28 per cent. of passenger train cars were in or due in shops within the next two months, but 23 per cent. were in or due in shops within two months in 1913. There were also a large number of locomotives withdrawn from service, the total being 126, which, added to the 11 held for sale, made 137 locomotives, of which 14 were sold or dismantled, leaving 123 which may be sold or dismantled. Charges to capital account for new equipment amounted to $7,092,000.

With an increase of 22 per cent. in the number of tons of revenue freight carried and of 23 per cent. in the ton mileage—the total ton mileage in 1913 being 6,232,000,000—there was an increase in transportation expenses of but 13.55 per cent.

With an increase of 23 per cent. in ton mileage handled, there was an increase of but 16 per cent. in the mileage of revenue freight trains and a slight decrease in the percentage of helping locomotive mileage to train mileage. Thus, the mileage of freight trains amounted to 10,795,000 in 1913, and the percentage of helping mileage was 5.38 in 1913 as against 5.41 in 1912. The average revenue trainload was 542 tons in 1913, as against 511 tons in 1912, an increase of a little over 6 per cent.; and the trainload, including company freight, averaged 637 tons in 1913, as against 594 tons in 1912. The marked improvement in trainloading was the result both of more weight hauled behind the drawbar—the average number of cars in train being 37 in 1913, as against 35 in 1912, and the average number of loaded cars being 9.61, as against 7.80—and an improvement in car loading—the average car load per loaded car, including company freight, being 23.23 tons in 1913, and 22.04 tons in 1912.

The reason that freight business increased somewhat more than the proportionate increase in freight revenue was because of a decrease in the average receipts per ton per mile from 8.67 mills in 1912 to 8.39 mills in 1913. This was due, of course, to changes in the character of traffic and to a somewhat larger proportion of long haul business, which, although the ton-mile rate is lower, is a profitable business for a railroad to handle. The average haul on the Northern Pacific was 293 miles in 1913 and 289 miles in 1912. This haul of less than 300 miles on a road that runs from St. Paul to the Pacific coast brings home rather plainly what a small part of the transcontinental railroad company's business is really made up of freight which moves across the continent, and what a large proportion of it is made up of local business.

There was issued during the year $987,000 prior lien bonds under the provisions of the mortgage, securing those bonds, and $10,317,000 of bonds held in the treasury were sold. Of these bonds sold $4,506,000 were prior lien bonds, $3,350,000 Chicago, Burlington & Quincy general mortgage bonds, and the remainder bonds of various companies. Thus, at the beginning of the 1913 fiscal year there were $17,434,500 securities issued or assumed held in the treasury, and $14,959,511 marketable securities. At the end of 1913 there were $13,560,500 securities issued and $12,065,080 marketable securities held in the treasury. Cash on hand at the beginning of 1913 amounted to $5,566,568, and at the end of the year to $3,457,972. There was an increase in the audited vouchers and wages of from $5,830,040 at the end of 1912 to $8,518,719 at the end of 1913, due in part, of course, to the larger business, larger payrolls, etc.

Since the close of the year Howard Elliott, who had been president of the Northern Pacific since 1903, resigned to become chairman of the board of the New York, New Haven & Hartford, and W. P. Clough, vice-president, was elected to the new office of chairman of the board of the Northern Pacific, and J. M. Hannaford, vice-president, was elected president.

The following table shows the principal figures for operation in 1913 as compared with 1912:

	1913	1912
Mileage operated	6,313	6,032
Freight revenue	$52,270,686	$43,793,522
Passenger revenue	15,808,036	15,343,752
Total operating revenues	72,676,139	63,423,947
Maint. of way and structures	10,188,054	7,861,491
Maint. of equipment	8,532,672	7,207,716
Traffic expenses	1,309,801	1,202,293
Transportation expenses	23,569,379	20,756,387
General expenses	1,073,392	1,130,631
Total operating expenses	44,673,298	38,158,517
Taxes	3,999,028	3,739,079
Operating income	24,312,633	21,839,101
Gross income	28,938,506	26,870,945
Net income	21,563,518	19,663,815
Dividends	17,360,000	17,360,000
Appropriated to cover sundry claims	750,000	.....
Surplus	3,453,518	2,303,815

Letters to the Editor

HUMILIATION FOR MISCONDUCT

Buffalo, N. Y., January 20, 1914.

To the Editor of the Railway Age Gazette:

I have read the article, published in your last issue, on Brown's discipline, as administered on the Baltimore & Ohio. It is a cheering sign of progress to find one more road which treats its employees as men and not as menials. There is one detail, however, on which you have little or nothing to say; and that is the actual conduct of the relations between the superintendent or the trainmaster and the men under these officers. There is, I believe, a great deal of injudicious practice in this matter; and in reading your article I looked carefully, but in vain, for some light on the question that is in my mind. Overbearing and ungentlemanly conduct on the part of officers, such as is supposed to have been well known fifty years ago, is still far too common. Brown's methods would seem well calculated to kill off such habits of mind; but the question is, do they do it?

Possibly you may think that a sermonette on kindness is out of place in a discussion of freight train management; but times have changed a good deal in the last dozen years, and I trust that no apology is necessary for presenting some observations on gentle behavior in a rough business.

An officer of a big and prominent road, speaking in confidence, said recently that the rough treatment accorded employees on his road when they had to be called to appear "on the carpet" was a real grief to him; and his words were of such a character as to suggest that my inquiry is not only proper but timely.

Why is it that in the investigation of train accidents many railroad officers do habitually indulge in the harsh and irritating methods of the prosecuting attorney—to the marked detriment of the service? When an engineman or a conductor causes a collision or a derailment, resulting in thousands of dollars of damage to property and perhaps also personal injuries, there are two main questions to be considered; first, can the man be improved; can he be admonished or corrected so that he will still be useful in the work to which he has been trained; and second, should he be fined, scolded or punished?

Cannot the railroad profitably leave the last-named question to the courts? Surely, the railroad which has spent several hundred dollars in educating a conductor or an engineer—somebody has estimated that each competent locomotive runner has cost his employer $5,000—surely every company must desire to conserve that value if it is possible to do so. And the officers ought to realize this; ought to realize in an intelligent way the employer's interest.

In the majority of cases the question whether a man is worth saving can be quickly decided almost offhand. If he has been properly watched and disciplined during his service as brakeman or fireman, there is usually no question at all; he *is* too valuable to be thrown into the scrap heap.

Having decided that he is worth keeping, what is the natural course for the superintendent to pursue? To get the man "rattled"? To take action which will cause him to dread the presence of any person who bears the semblance of an officer of the company? To humiliate him before his fellows? To make his offense public? To the level-headed superintendent, to one who is disposed to treat his trainmen as he would treat his clerk or a traveling agent; as he would himself be treated, it would seem that these questions should answer themselves.

And why shouldn't all these classes be treated on the same basis? Publicity in connection with the causes of train accidents has been highly commended in certain quarters, but I cannot see how the exposure of the trainmen at fault can help matters much. Even if a man must be discharged—which act often is justifiable only because laws of Medes and Persians must be enforced, even when it is known that enforcement is useless—the publicity does little or no good to the public unless the fault is one warranting dismissal and unless also the facts are so widely published as to keep the discharged man from getting a job on any other road.

And wherein is the mistake of an engineer or other trainman different from the mistake of a private secretary, a station agent, a baggage master or a shopman? In results, there are, indeed, great differences; but in educating or disciplining a man it is a question not of results, but methods. If a man who has made a mistake is to be kept in the service, he should be made better. To do this the methods must be the same in principle as those which are employed with a new man: patient instruction; constant inspection of work; explanations of wrong actions; and the correction of errors, where possible; repetition of lessons and re-repetition where necessary. Wherein is this kind of work helped by "grilling" and other expedients which force a man to appear at his worst? A hearing held with a dozen officers or strangers in the room is almost sure to confuse a man who has been at fault for a serious mishap. Where, indeed, is the benefit of suspension from the service? If the officers make proper use of these normal processes, there can, logically, be no virtue at all in suspensions, except in the cases of employees too dull to be amenable to simple reason and common sense. Is not suspension a confession of inability to apply rational educational means?

Is not the course which has been outlined the one which any superintendent or trainmaster would employ if he were in private business, dealing with his own employee? Why should a different policy be employed with trainmen? If a man is so bad that he must be dismissed, that, of course, changes the situation somewhat; but enlightened officers are beginning to see that dismissals, except in the lower grades of the service, where a man's work is partly educational, may often be discreditable to the officers themselves.

Possibly the harshness here spoken of is not so widespread as I have assumed it to be; perhaps the roads I have in mind are worse than others. It would be of much interest to have views on this subject from readers in different parts of the country. Harsh mannered officers ought to be shown up; and those of a discreet, diplomatic temper, knowing the value of mild manners and a conciliatory temper ought to be shown up still more, ought to be made examples.

J. F. M.

THE DELAWARE & HUDSON STRIKE

Washington, January 31, 1914.

To the Editor of the Railway Age Gazette:

Your courteous request for a statement of the "reasons that were conclusive in leading the company to yield to its employees and to take back men who on the face of the company's own statement ought apparently never to have been taken back," in the recent Delaware & Hudson strike, was received today.

I note what you say with reference to your "unquestioned duty" to your readers and assure you it is, and will be, the purpose of the Board of Mediation and Conciliation to aid you so far as the conditions of its confidential relations to the parties to a controversy will permit. You will, of course, appreciate the fact that if we fail to preserve that confidence our efficiency would not only be seriously injured so far, at least, as our obligations to the public interests are concerned, but the very foundation of successful work would be destroyed through a reluctance and perhaps refusal of the opposing parties in the future to impart to us the real facts of a controversy. So long as the board and its members are regarded as impartial and both parties to a controversy have assurance that their communications to the board will be held in confidence, we may rely upon securing accurate data in mediating between them. But as soon as it is known that the Board of Mediation and Conciliation can and

may disclose confidential information, either before, pending or subsequent to settlement, the usefulness of the board in this field of its service will be seriously impaired if not destroyed.

This board, fortunately, has no power to compel a railroad to take back into its service discharged employees, whether justly or unjustly discharged. It is equally powerless to compel an employee who has left the service to return. There can be no such thing as compulsory mediation, and those of us who labor sincerely for just relations between employer and employee and industrial peace must do our utmost to stay the necessity for compulsory arbitration. The crux of the law we are administering is "the public interest," which we believe can be best conserved by keeping inviolate all the facts developed during the mediatory stages, leaving their publicity to such developments as arbitration may disclose in those cases that go beyond mediation. This line of procedure has enabled the board to adjust by far the larger proportion of the controversies quietly and satisfactorily to both parties without the slightest disturbance of the public interest, and in not a few cases without publicity even of the existence of the controversy.

While the Board of Mediation and Conciliation is unable to see that any beneficial interest will be promoted thereby, yet it is quite agreeable to the board to make a statement for publication of all the facts and conditions connected with the Delaware & Hudson case, which convinced Assistant Commissioner Hanger of his duty to give the advice he did, provided the parties to the controversy will release their confidential character. I think it is but fair, however, to say that there is nothing startling or sensational about the case.

In conclusion, I beg to assure you that there is no disposition on the part of the Board of Mediation and Conciliation to keep from the public any information regarding these controversies where the element of confidence has not been the medium through which the information came. I believe that such a journal as yours will fully appreciate this attitude of the board.

W. L. CHAMBERS,
Commissioner.

A PLEA FOR THE FUSEE

EASTBOURNE, Eng., December 22, 1913.

TO THE EDITOR OF THE RAILWAY AGE GAZETTE:

Recent calamitous collisions on railways in the United States have excited general interest in their causes and prevention. Such occurrences are either of human or mechanical origin. The relative importance of these causes elsewhere is afforded by experience on British railways. In Great Britain and Ireland the statistics of the Board of Trade give the number of collisions to passenger trains officially reported, as 422 in the five years 1903-1907, and 505 in the subsequent period 1908-1912. The number of collisions is remarkable, as block signals are in general use on British railways and, in connection with experience in the United States, it is of interest to ascertain the extent to with these collisions were attributable to human or to mechanical origin.

Of the 422 collisions reported in the period 1903-1907, 104 were considered of sufficient importance to be the subject of especial enquiry and, in the subsequent period 1904-1912, out of 505 collisions there were 74 especially enquired, etc. In the 104 enquiries during the first period, 38 were attributed to the engine driver, 49 to the signal man, 6 to the signal apparatus and 11 to miscellaneous causes. In the 74 enquiries during the subsequent period, 32 were attributed to the engine driver, 33 to the signal man, 2 to the signal apparatus and 7 to miscellaneous causes. In 160 collisions occurring to passenger trains during the entire period 1903-1912, disregarding the 18 attributed to miscellaneous causes, the causes of 70 were attributed to engine drivers, 82 to signal men and 8 to the signal apparatus: that is, 152 out of 160 collisions were of human origin in a train service operated under a block system so well maintained that in only eight cases was the signal apparatus at fault. From this definite information, does it not seem more important to direct attention to the prevention of collisions of human origin than to the improvement of signal apparatus?

Where does the human responsibility lie? There are three classes of employees upon whom this responsibility rests; viz.: the engine drivers and the signal men, as noted in British statistics, and a third class there unmentioned, the flagmen. Not that in British practice the flagman has been eliminated; for the flagman or rear guard is as generally employed in Great Britain as in the United States and, in every official enquiry, evidence is taken as to the manner in which the rear guard has discharged his duty. The result, in almost every enquiry, is to divide responsibility between these three classes of employees and so to weaken their relative culpability.

If the causes of collisions are disproportionately of human origin and if the responsibility of the men charged with the protection of the train service is weakened by division among these three classes of employees, why not seek prevention by concentrating such responsibility upon one class alone? The responsibility of the signal man is with reference to warning an approaching train. In that direction the engineer is the first of the train crew to be so apprised. Furthermore, he is the only person who controls the movement of the train; consequently he is the first of the crew to know when the train is about to make an unusual stop. Therefore he is the person upon whom the responsibility should be concentrated for the protection of his train when such a stop is unexpectedly to be made. Under present practice, the protection of a train when unexpectedly stopped is solely entrusted to the flagman, where there is no block system. Even where there is such a system, the evidence is conclusive that, so far as concerns the men in charge of the standing train, protection against a following train which may overrun a signal is solely entrusted to him.

Now, flagmen are supposed to be the least experienced and the least important of the classes of employees to whom the protection of a train is confided; and long experience in train service justifies the assumption that they are also the least reliable in this respect. The flagman usually looks out for himself first. As his train slows down unexpectedly, he lingers on the rear platform, hoping that he may not have to leave it, particularly in inclement weather. He knows that he may be left behind and not be picked up by a following train. As he slowly wends his way, he looks wistfully back; and the engineer of a following train may see the rear lights of the train ahead of him about as soon as he does the flagman's signal.

Why should the most important duty in such a case be assigned to an employee so situated? Why not place it solely with the engineer? If such a plan could be devised, ought it not to be generally adopted? There is a simple and efficient device that will accomplish this purpose. It is the railroad fusee or flare-light, actuated by striking the percussion fuse in its head and which, when thrown on the ground, gives a brilliant, rose-colored, unquenchable light, known in pyrotechnics as Bengal fire.

An engineer furnished with these fusees can light one and drop it as soon as he finds that he has to make an unexpected stop. As the train moves away, it will continue to burn for either five or ten minutes, as may be desired, and is an unmistakable warning to a following train that the preceding train has not yet left that spot for such a length of time; while it is a notice to the flagman of the leading train to be prepared to go back, and is also a precautionary signal that is independent of him.

This is not an experimental proposition. It is based upon an experience of fifty years in railroad operation and management in the United States.* In actual practice, fusees thus handled by engineers have frequently proved efficient in preventing col-

*Colonel Haines was formerly a prominent American railway officer and for nine years (1887-1895) president of the American Railway Association.—EDITOR.

lisions in cases of unexpected stops. On one foggy night, over a hundred fusees were used in this way upon a mileage of single track with an abnormal number of trains unprotected otherwise than by the station telegraph line, and without a single accident!

This simple expedient is also equally available on double track; for it is always to be dropped outside of the track in the direction in which the train is moving and in nowise delays trains in the opposite direction. Only a following train is brought to a stop until the fusee is burned out, and may then proceed cautiously with the knowledge that the preceding train is not more than five or ten minutes ahead. In every instance in which a collision has occurred from a following train overrunning signals, a blazing fusee would more certainly have attracted the attention of the engineer than a distant signal could have done. The brilliancy and color of the light and its peculiar diffusion are too remarkable for it to escape the attention of the men on the engine.

The fusee is as available in this respect by day as by night; for if it produces a conspicuous pillar of fire by night, it creates an equally conspicuous cloud of smoke by day and as a preventive of rear collisions of human origin it is well worthy of serious consideration by those who are primarily responsible for the safety of train service. H. S. Haines.

CAB SIGNALS IN FRANCE

New York, January 31, 1914.

To the Editor of the Railway Age Gazette:

The report in your issue of November 28, giving the cause of the terrible collision at Melun, France, in that month, has made your readers acquainted with the fact that preparations are being made for the use of audible indications in the cabs of locomotives at all signals on 150 miles of the line of a prominent French railway.

The action of this road, the Paris, Lyons & Mediterranean, is only one of a number of similar decisions. Disastrous railroad accidents cause much discussion in France as in all other countries, and the French government about a year ago ordered the railroad companies to install cab signals generally. The P. L. & M. equipped its line from Paris to Pontarlier, nearly 300 miles, some time ago. As a result of inquiries made recently in Paris I may summarize the situation briefly.

As your readers are aware, the Northern Railroad has had a cab signal in use on the locomotives of all of its important lines for many years. This is an open-circuit system, and it seems to be admitted that the apparatus is subject to rather frequent failures. Nevertheless, its use has been gradually extended, year by year, and it seems fair to conclude that the policy of this company has been one of the main elements which have impelled the government to take action.

To make its recommendation to the railroads definite and positive, the government has now called on each one of the principal companies to submit, within one year, a plan and description of its proposed cab signal, for approval by the government. This order has resulted in a variety of experiments.

Three different mechanical devices are being tried, those of Van Brahms, Cousins and Augereau. In all of these a whistle is sounded in the cab when an engine passes a signal which is set against it. They have recording sheets, and a mark is made on the sheet to show that the signal was passed in the stop or caution position.

It is difficult to get from railroad officers intelligent reports of their experiences with these mechanical devices, but the general impression one gets is rather unfavorable. In the experimental installations the cab signal connection is controlled from a signal cabin, and as the connection with a distant signal, by a wire to be pulled by main strength, is at best none too satisfactory, the cab signal apparatus seems to add to their troubles, and mechanical devices thus far have not aroused any enthusiasm.

Several roads have in use electrical devices. Some of these have batteries on the roadside and some on the locomotives. One of the systems works, without contact, by means of an induced current.

All experiments are being made cautiously as the government—if it continues to act under its present apparent purpose, and if it looks ahead—must aim at uniformity, and may establish standards. This will be necessary in order to provide for the numerous cases where the engines of one railroad company run over the lines of another. The means by which the moving vehicle shall pick up electric current from the roadside is therefore an essential matter to be rightly settled.

All new engines put in service on the French railroads are now required to be equipped wtih speed recorders. The most prominent device of this class is Flaman's, invented by an engineer formerly on the Eastern Railroad of France. Another recorder in use is that designed by Haushalter. C. P. W.

SAFETY FIRST FOR CLERKS

Indianapolis, January 16, 1914.

To the Editor of the Railway Age Gazette:

One of the "Safety-First" committees on a large railway system has been looking into the question of employees' bulletins as affecting the question of safety, and has made some marked improvements. As most of these safety-first movements have been devoted largely, or wholly, to the promotion of the safety of individual employees, rather than to the safety of trains, this committee's attention to a subject affecting train movements would seem to deserve general imitation.

The simple matter of getting assurance that bulletins are received, read and understood, is often attended to only in a perfunctory and imperfect manner. Do all the men acknowledge bulletins promptly? In the case of bulletins posted, are these acknowledgments made in writing? Do the superintendents' clerks record the acknowledgments promptly, so as to detect a negligent conductor or engineer?

Should not every clerk having these matters in charge put himself through a strict and minute civil service examination? If the reader is a clerk in a superintendent's office, or if he has anything to do with this branch of work, let him ask himself, not only the foregoing questions, but numerous others; as, for example:

Do you print orders legibly so that every word can be read as easily as the figures in the employees' timetable?

Does your mimeograph skip letters?

Do you have an acknowledgment given to the clerk in charge of the bulletin board, or is it mailed direct by conductors and enginemen to the superintendent's office?

Do you see that bulletins are always posted where the light is at all times good, so that they can be read with the greatest facility?

Do you get acknowledgments for bulletins as carefully and thoroughly as you get them for timetables?

Are the bulletins posted under glass, or do they get torn and blurred before they have expired?

Must they be read by men standing in front of a frame, or can the reader sit down and take his time?

Do you send copies by letter, that is, enclosed in envelopes, to any class of employees? Under what circumstances is this necessary?

Do you do any surprise checking in this department—that is to say, do you take any measures to detect carelessness in reading, etc.?

Some trainmasters need to have their skill in the use of the English language tested and perhaps trained, so as to improve their written documents; what is the situation on your division in this particular? Can the chief clerk do anything to correct such faults as this?

Is it not certain that, in getting answers to these questions, and to others which will arise when the matter is followed up, almost any superintendent, superintendent's clerk, trainmaster or trainmaster's clerk would find many things that ought to be improved?

Who can give us a model bulletin notice, and a model scheme for managing bulletins? E. R. M.

Qualifications of the Road Foreman of Engines

Careful Study Necessary in Selecting Men for This Position—Temperament a Most Important Consideration

The duties of the traveling engineer, or to use the better title, road foreman of engines, are in a large measure alike on all railways, but the status of the men holding this position varies a great deal, depending largely on the qualities to be found in the men who hold the higher offices on the road and their ability in perfecting a system of organization.

The road foreman of engines has been and in too many cases, still is merely an investigator—a man who, after a rule has been violated or an accident has occurred, is assigned to conduct an inquiry. On some roads he seems to be useful mainly as a messenger boy for the master mechanic, who, having too much work to attend to, makes use of his road foreman in this way in an effort to try and keep in touch with what is taking place on his division.

During the past few years, however, the officers of the more progressive roads have begun to realize more fully that by carefully instructing and supervising the work of enginemen not only can the need of investigations be materially reduced, but the efficiency of the men and the locomotives can be increased, and marked savings made in fuel and other supplies. This has increased the importance of the road foreman and has placed this position in its relation to that of other officers on a higher plane. It has made it more nearly what it should be, that of a subordinate operating officer. In a number of cases where intelligent and persistent study has been given to this question an organization has been developed which is producing remarkable results.

THE SELECTION OF A ROAD FOREMAN

In choosing a man from the ranks for the position of a road foreman there are several things to consider. A man may have a good record as regards freedom from accidents; he may have a record for saving fuel; he may be able to get his train over the road under trying conditions; he may have an unusually thorough knowledge of the locomotive. One or more of these reasons frequently will be made the prime factor in the selection of road foremen. Without question they are matters of great importance and are to be given careful consideration in deciding on the man for the place. But should any one of them, or all of them combined, constitute the deciding factor in making the final selection? This is a weighty question, and a little study of the nature of the work may help in answering it.

In deciding on a place of education for a son, anyone giving the matter the serious attention which it deserves, naturally chooses a school or college where the boy will have the broadest and best possible training to fit him for his life work. The parent will select a school where the instructors are of the highest reputation, men who will command the boy's confidence and respect, and who have the judicial temperament, men capable of fairly weighing the evidence when infractions of the rules occur, and of rigidly enforcing discipline.

Now, the road foreman is a teacher. To be a thoroughly competent officer, he needs all the temperamental characteristics of the most successful educator. He is placed in direct charge of the enginemen and firemen in his district, and he has, or ought to have, charge of the selection and training of firemen. It is through his training and under his direction that these young men become enginemen, and their ability as runners depends to a great extent on the road foreman. Moreover, a considerable part of this officer's work is the conducting of investigations; and in order properly to weigh the evidence and decide with absolute fairness on the discipline necessary in such cases he must be thoroughly capable of acting in a judicial capacity.

An important railway, a few years ago, afforded in a comparatively brief period and in the same district, striking examples of the wise and unwise selection of men for the position of road foreman. The first man chosen for the place had proved himself a good engineman, but he had the reputation of being hard on his firemen. He was intensely energetic and expected a similar display of energy at all times from those with whom he came in contact. His selection for promotion was due mainly to the way in which he threw himself into brotherhood matters, particularly those of grievances arising from discipline; and the master mechanic reasoned that the energy which the man displayed in such matters could be turned to good account for the company.

But this was a short sighted decision. An officers' special train on which the road foreman was riding was delayed one day at a small station because of an error on the part of a young engineman in not clearing the main line with a light engine. The man had only recently been approved as a runner by this same road foreman. Instead of giving the engineman all the help he could to get the main line clear, and at a later time taking the matter up with him quietly, and helping him toward deciding how to act in such cases in the future, he at once proceeded to give the new runner a violent tongue lashing. This was only an example of his dealings with the men under him generally. Combined with haphazard methods of discipline, this conduct soon got him heartily disliked by the men, and the officers directly above him, seeing that instead of improving conditions on the division he was making them worse, found it necessary to replace him.

The man who succeeded him had an excellent record as an engineman. He seldom had an engine failure and was always willing to go out without any demur, no matter when or for what kind of service he was called, and he had a record for getting his train over the road without annoying delays. But his most noteworthy characteristic was that he had trained more firemen than any other engineman on the division and that almost all of them had turned out well. He knew how to deal with men in order to bring out the best that is in them, and from the day of his appointment conditions began to improve. He is still in charge of the enginemen on that district and has proved his ability in every way in which his predecessor proved lacking.

Summarizing, then, the characteristics which should obtain in a man if he is to fill successfully the position of road foreman of engines: He should be of an even temperament and of a disposition which will command the friendly feeling and the respect of those under him; he should be capable of training men, and, in investigations, he should be capable of getting at all the evidence, weighing it judicially, basing his decision on sound reasoning and then enforcing discipline impartially. In brief, he should combine the qualities of a student of human nature, a skilful educator and an impartial judge. He should also have a thorough knowledge of the locomotive and its efficient handling, and, of course, be thoroughly acquainted with all the rules regarding the operation of trains.

WHY STRESS IS LAID ON THESE QUALIFICATIONS

A brief analysis of some of the conditions to be met in the work of a road foreman of engines should indicate why these qualifications are essential.

The selection and training of shop apprentices is a matter that is receiving increasing attention on the railways and on a good many roads it has been elevated to that degree of importance where it requires a small organized branch of the motive power department to properly care for the work. The locomotive engineer, to be entirely competent and successful in

his work, requires a high degree of self-control and calm judgment, which a boiler maker or machinist might lack and still be successful. And yet, how much attention is given to the selection of firemen? Of course every road requires its recruits for this branch of the service to conform to certain requirements physically, but it is not within reason to expect, by the mere defining of such physical limitations and the making of the requirement that the man be able to read and write, that the man selected will be the one who will make the best fireman and engineman, if the selecting be left to an office assistant or even to the engine house foreman. Not only the running but the firing of a locomotive requires intelligence, not mere physical strength, and unless the man who hires firemen realizes this from first hand knowledge, he will be more than likely to hire men mainly from the standpoint of physical qualifications.

The selection and training of firemen, who are to be the future enginemen, should be given at least as much care as the selection and training of shop apprentices, and the man who understands better than anyone else the type of man that will produce the best results in this service is the road foreman. The road foreman has the chief responsibility in training the man after he is accepted, and he should personally select the material with which he has to work. The selection is too important to be settled without his aid. In order to do this intelligently he must be a student of men, their characteristics and their habits.

Headstrong, bullying methods in the instruction of men on a locomotive bring the minimum of success. The road foreman who takes the shovel and carefully shows a fireman wherein his firing was incorrect, and who takes pains pleasantly to explain to an engineman why his engine will do better work with the reverse lever back another notch, will quickly obtain the respect and confidence of the men under him. They will be glad to see him when he gets on the engine with them. Such a foreman has the main elements to make him a successful trainer of men.

The road foreman, in his capacity as an investigator, meets a great variety of character. To the class of engineman that is most frequently in trouble belongs the man who will falsify in order to throw responsibility on another to avoid being disciplined himself. To get at the evidence bearing on the case the road foreman must not only understand the exact conditions, but he must, by careful questioning, bring out all the points which it is possible to get at. It is in investigations of this nature that he must exercise his judgment to the greatest degree. If he is not capable of bringing out the truth and of basing his decision on just and impartial grounds, he may injure the record of a fireman or other employee who is guiltless and at the same time permit the guilty man to escape punishment.

Naturally his knowledge of the locomotive and its handling, and of the rules, must serve him at such times as this, but they are also of supreme importance in the training of the men under him. A road foreman cannot make much of a success of instructing firemen and enginemen if he cannot fire and run a locomotive himself. A fireman could "soldier" and deceive a man who did not understand firing, but he could not deceive a man who could take the shovel and find out for himself whether or not the engine was steaming freely. The more time a road foreman can spend in contact with the men under him, the better will be the results if he is the right man for the place. If the men are capable, the engine itself will need very little of the foreman's attention.

HOW MANY CREWS SHOULD THERE BE UNDER THE DIRECTION OF ONE MAN?

Differences of opinion exist as to the number of crews that can be efficiently supervised by one road foreman. In some cases 100 is fixed as a maximum, while there are mechanical department officers who say that as many as 150 and 175 can be managed, and others who consider 50 or 60 crews enough for one foreman.

This is a consideration which must of necessity depend largely on the density and character of the traffic. On one large system with a dense traffic there are, in round numbers, 1,500 crews with 15 road foremen. The officers of this road are frank to admit that they have not enough road foremen and that the number will be increased at the earliest possible moment. In fact, this is being made a part of improvements now under way, tending toward increasing the efficiency of the men in locomotive service, which include detailed reports covering each locomotive and crew which the road foreman visits.

It seems questionable whether the number of crews is the best basis to use in assigning the work of a road foreman. The officer who makes the appointment should ask himself, "How often should the road foreman ride with each crew under his direction; with this decided, how many crews can he efficiently oversee and at the same time give the needed attention to the other branches of his work?"

On some roads, and the number of roads is increasing, he is required to ride with each crew at least once every 30 days, and in almost all of these instances the results have amply justified the making of this rule. However, a case which might be mentioned where a man has charge of a fixed number of engines is that of the placing of 27 Mallet locomotives, working on a comparatively short district, in charge of one road foreman. This man is able to keep in close touch with his enginemen, who are, in consequence, obtaining much better than average results.

The methods employed on an eastern road where each road foreman is required to ride with each of his crews at least once every month have given remarkably good results. The cost of this branch of the mechanical department during a recent year was somewhat over $60,000 and from this expenditure a direct saving in fuel, oil and supplies of four times that amount has been directly traced. This does not take into consideration the general increase in the efficiency of locomotive and train operation, a good part of which must be credited to the care taken by the road foremen in instructing enginemen in matters pertaining to the handling of their engines.

In the selection of men for the position of road foreman of engines on this road, the first consideration is to find a man who realizes that the "man factor" is of the first importance. The division master mechanic, with the approval of the superintendent of locomotive operation, selects the foreman, who is then appointed by the division superintendent. For each engine on which he rides the road foreman fills out, in duplicate, a card which shows the general conditions of the various parts of the locomotive as well as the character of the work done by the engine crew, and a memorandum of what instructions he found necessary to give him. One of these cards goes direct to the superintendent of locomotive operation and the other to the division master mechanic, who forwards it to the roundhouse foreman to whose terminal the locomotive belongs. The latter, after personally seeing that the necessary repair work is done, signs the card and returns it to the master mechanic; he, in turn, signs it and forwards it to the superintendent of locomotive operation, who checks it against the card he receives direct from the road foreman. By means of the record thus obtained it is possible at any time to tell exactly what inspection and supervision each locomotive and each engineman is receiving and to keep in close touch with the man's work so that if he is not giving entire satisfaction immediate steps can be taken to improve the condition. Each foreman is required to make a certain number of surprise tests each month and he is also held responsible for the frequent inspection of the locomotives at the terminals and for the way in which the enginemen enter their reports of work in the roundhouse work book.

Under this system, the number of crews placed under one man's charge varies with the conditions on different parts of the road, but it is seldom more than 50 and in some cases is even lower. On districts where it has been found desirable to have two road foremen, the men are required to consult each other in every case where any doubt arises, and to work out the solution jointly.

IMPORTANT POINTS WHICH SHOULD BE CONSIDERED

The road foreman can obtain much valuable information as to the work the men under him are doing, and which of them need the most attention, by keeping in touch with the train despatchers. By frequently spending a little time in the despatcher's office talking matters over with him and watching the progress of the trains over the road as it is shown on the train sheet, he can learn a great deal as to which men are doing the best work and which ones are lagging behind. The train sheet often shows bases for comparison that could not be found anywhere else. A train despatcher who knows his business can usually tell to a considerable extent when he learns the number of the engine and the names of the crew assigned to a train what kind of a run may be expected.

When too much territory or too many crews are assigned to one man his work will almost always be confined to investigations and even then he will generally be days or weeks behind. When a man is overburdened in this way almost the only time which he can find to ride with his engine crews is when he is going to or coming from an investigation. Because of conditions of this kind and also in cases where a man may not be overworked, because of the difficulty which will very often be found in obtaining road foremen with all the desired qualifications, it has been suggested that dividing the work on a district between two men would produce gratifying results. The intention in such a case is that one of the men should have entire charge of the selection and training of firemen and enginemen and be held responsible for their work. The duties of the second man would then be confined entirely to investigations and the administration of discipline, the duties of the other being entirely distinct from this part of the work, except that he would cooperate with the man assigned to investigations in obtaining information.

The possibilities of such an arrangement will readily be seen. It is much easier to find a man who will be a good instructor and one who has a judicial mind than to find a single individual who combines these characteristics. This broadens the field of selection and by having one man give his entire attention to the training of enginemen, a greatly improved standard logically results.

The same reasoning applies to the matter of investigations; improved discipline and less friction with grievance committees should result, while at the same time each man can greatly assist the other in the performance of his duties.

One difficulty that often has to be overcome after promoting a runner to road foreman is timidity on the part of the man in dealing with those in his charge—more particularly in the matter of discipline—because of the feeling that he may be sent back to running within a short time. If set back he will be subject to the ill feeling of his former brother enginemen on account of decisions which he may have found it necessary to make, for there are many occasions which demand prompt and vigorous treatment. Such a man should be quickly brought to realize that his first duty is towards the company.

No man can be a success as an officer of a railway company if he is constantly afflicted with misgivings as to how his actions will be construed by either his former associates or the officers. One of the greatest problems that confronts a road foreman is that of instilling loyalty to the company into the men with whom he has to deal, and if he does not himself see the close mutual relation between the interests of the men and those of the company, he will never get very far along in his position.

It has been previously stated that the road foreman should give the greater part of his attention to the men and far less to the locomotives. To insure this, one road has accomplished excellent results by the employment of traveling inspectors of machinery and of air brakes, who report direct to the master mechanic or the superintendent of motive power on the conditions of the locomotives. The road foreman is then held responsible for the men only, such reports as he may make in the routine of his work regarding the condition of locomotive equipment being entirely supplementary to the reports of the general inspector.

Satisfactory results have been obtained in other cases by placing the switch engines in large terminals under the jurisdiction of one road foreman and confining his work to that group of engines. This same idea has also been carried out with success in the case of road engines by placing one man in charge of passenger locomotives and having another in charge of the freight work.

It is not the intention in this article to lay down rigid rules as to the extent of the territory or the number of men over which a road foreman should be given jurisdiction. If such rules were given as applying to a road with a short haul and a dense passenger traffic they would not apply satisfactorily in the case of a road whose traffic was mainly freight, with long divisions and few trains. It is believed, however, that it will generally be found to produce better results if the system be followed of having each engine crew visited by the foreman once in a certain period of time, rather than that of placing a certain number of men under his jurisdiction and having him ride with them when he gets a chance or when something goes wrong. If an engineman is doing good work, getting over the road and having no trouble with his engine, it is a very common practice for the road foreman to keep away from him entirely, the argument advanced being that he does not need help. But the man who is doing good work should have the foreman ride with him if only to commend him. Such commendation and its incorporation in the man's record will be found to go far toward producing contented and loyal enginemen.

The road foreman has in the past been too much an investigator—a searcher after the cause of troubles that have become history. His most important duty (if one man is to act both as instructor and investigator) should be to educate and develop a class of men who will use their thinking powers so that they will keep out of trouble. There will always be investigations to be held and that consideration cannot be neglected, but the foreman can, by his methods in dealing with the men under him, greatly reduce this number. The practice mentioned before of having two men, one as an instructor, is well worthy of consideration, as there are many situations where the adoption of such a system would work out most advantageously.

CONCLUSIONS

Probably the first question that will enter the minds of those who oppose an increase in the number of road foremen and of those who are in doubt as to whether the increase will produce good results, even if made, is "Where is the appropriation coming from?" Anyone who is burdened with this question will do well to look at the apprentice system. Special appropriations have been secured to provide instructors for shop apprentices, and the expenditure has justified itself many times over in every case. Shop employees can be kept in touch with their foremen and instructors practically all the time; they do their work under what amounts to constant supervision. Men on the locomotive have scarcely any supervision and so need instructors all the more. No argument is needed to show that the work of men in locomotive service is more onerous than that of machinists and other shop employees. The greater part of their work being done away from terminals, constant supervision is impossible. It is only reasonable that these men should need as much individual instruction and supervision as it is possible to give them. To know what a man is doing, his foreman must be in close personal touch with him and the way to accomplish this in the case of enginemen is to provide an ample and efficient staff of road foremen. The saving in dollars and cents will show up many times larger than that effected by a shop apprentice system. Arguments to the effect that the money for this purpose cannot be produced are not well founded; the railways that are making the plainest demonstration of the value

of careful supervision of enginemen are numbered among what are commonly known as "poor" roads. They will not always be poor if they follow this plan to its logical conclusion.

There are, then, it would seem, three main considerations in the selection of road foremen:

(1) Consider first the temperament of the man. His ability as an engineman and his other characteristics should be secondary to this.

(2) Make a careful study of what it is desired to have the foreman accomplish and with this in mind fix the extent of his work so that he can keep in close and frequent touch with every man under his jurisdiction.

(3) Give him absolute charge of the hiring of firemen and the training of both firemen and enginemen; then hold him responsible for the development of the right kind of men. It is essential that he be paid a reasonable salary and otherwise encouraged to remain in the position after he is appointed. No lasting results can be obtained if there are frequent changes of foremen.

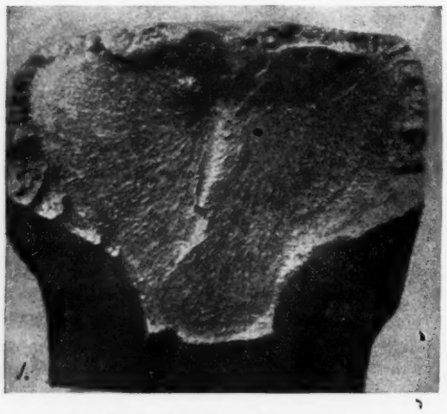
Finally, if a system of supervision and training of enginemen by means of road foremen is to be a success the officer who selects the road foreman must be a man who is wholly fitted for the position he holds. It cannot be reasonably expected that a master mechanic who is narrow minded, and who looks only at today and lets tomorrow take care of itself, will have under him any but men of the same type. In the final analysis, the type of man who holds the place of road foreman depends on the type of man at the head of the organization.

RUSSIAN RAILWAY MINES AND SHOPS.—The Russian Ministry of Ways of Communication has decided to ask the Duma for an appropriation of $1,133,000, to be used for the purchase of coal mines to be operated by the state railways. An appropriation of $40,000,000 is also desired for the repair shops.

INTERNAL TRANSVERSE CRACKS AND FISSURES IN RAILS

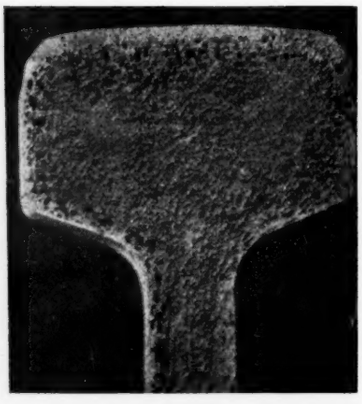
BY ROBERT JOB

Internal transverse cracks or fissures in rails have been very carefully studied and discussed throughout the United States in recent years, owing to the fact that the defects cannot be detected in track until the rails in which they occur have become seriously weakened, and a failure may thus occur which cannot be guarded against by even the most rigid system of track inspection. It has been clearly demonstrated that the cracks, or at least the majority of them, are not in the rails when rolled, since frequently they are found with clean, bright, unoxidized surfaces, entirely surrounded by unbroken metal. After the crack has grown large enough to extend to the surface, generally at the side of the rail, moisture is admitted and the surfaces of the crack then become discolored or oxidized.



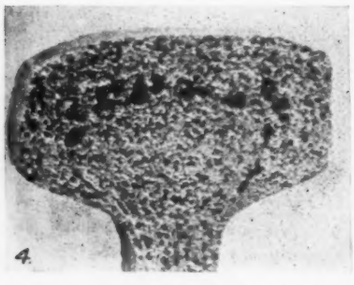
Austrian Rail with Internal Transverse Crack or Fissure (Dormus)

Austrian Rail with Internal Transverse Crack or Fissure (Dormus)

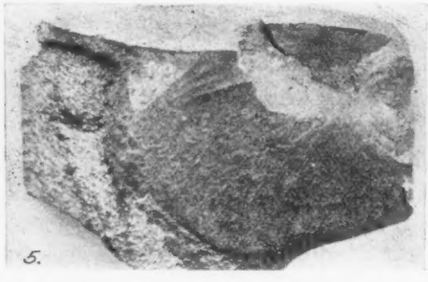


Austrian Rails in Which the Above Defects Developed

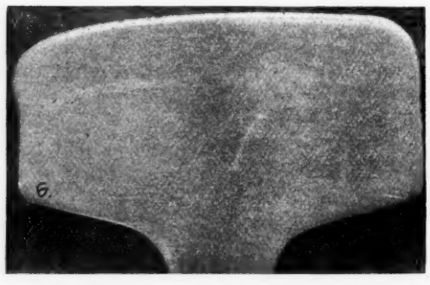
In some of the discussion which has taken place during the past few years it has been assumed that the internal transverse crack or fissure is a recent development in railroad practice caused by extreme modern conditions of traffic or by extreme variation in composition, as for instance, by extreme wheel pressures, or by high carbon content, or by a combination of both, and that the conditions of manufacture of the steel have little or no influence in the final formation of these defects. These statements do not accord with the results of carefully conducted investigations by the writer, and they are also at variance with the results of studies made in other countries.



Austrian Rails in Which the Above Defects Developed, Etched Showing Unsound Condition (Dormus)



Open Hearth American Rail with Internal Transverse and Longitudinal Cracks After a Service of Two Months



A Polished Section of the Same Rail Showing Longitudinal Cracks

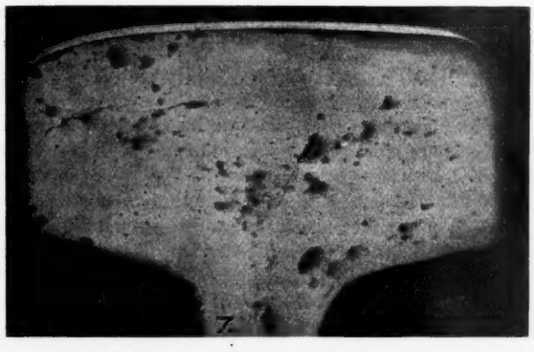
What is now termed an "internal transverse crack" or "fissure" in rails, was carefully investigated in Austria before the beginning of the present century and some of the results of the study were published by Anton Ritter von Dormus at Vienna in 1901. In order that Professor Dormus' studies may be bet-

ter known in America, we take the liberty of reproducing several of his illustrations,* Figs. 1, 2, 3 and 4. Figs. 1 and 2 are typical examples of the defects as we find them in this country, and it is interesting to know that in Austria these failures occurred in Thomas (basic Bessemer) steel, in which the carbon content never exceeded 0.40 per cent., and in most instances was much less. The weight of the rails was about 70 lb. per yard and the defects developed sometimes after a very short service, though at other times only after a service of 20 years or more.

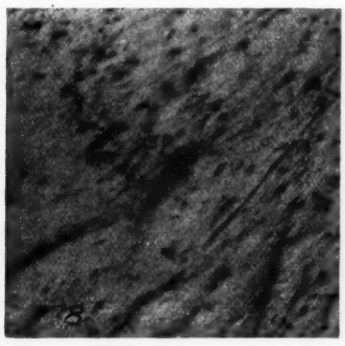
Thorough study was made to determine the cause of the defects, and Professor Dormus found that they were present in rails in which the steel was unsound, as shown in his etchings (Figs. 3 and 4) and he reached the conclusion that the defects developed in service when iron oxide, sulphur or other foreign matter was present in excess. He states that they are a result of defective manufacture and that there is no reason to suppose that they originated through too heavy trainloads, as long as the steel was sound. Professor Dormus also decided that in some cases the defects were formed during the manufacture of the steel while the steel was still hot, since he found that some of the spots which were entirely surrounded by unbroken metal were colored blue or black, or in other words, were oxidized. He states further that in these defective rails the number of these cracks is sometimes very large, as many as 42 having been found in a rail about 20 ft. long. Professor Dormus has never seen these defects in rails made from open hearth steel, but he writes that their occurrence in this country in steel made by that process is simply a proof that the rails in which the cracks developed were not properly manufactured. In view of Professor Dormus' standing in metallurgical circles abroad, the results of his investigations are of decided interest and importance in this country, particularly since the defects abroad occurred in very low carbon steel, and under what, to us, would be considered moderate traffic conditions.

The above conclusions coincide fully with our own investigations, although, as we have stated elsewhere† we have found the defects both in Bessemer and in open hearth steel, and in high carbon, as well as in low carbon steel. In every case we also have found porosity, segregation, or other evidence of defective manufacture in the steel. We have also found that where one of the cracks occurred in a rail many often were present. The brief statement given above will serve to show the close agreement of the results of investigation abroad as compared with our own.

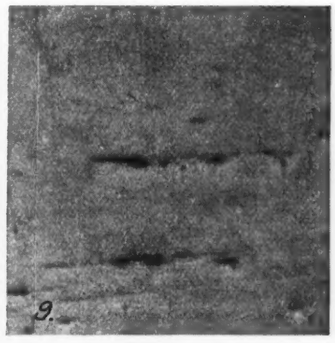
Owing to the dangerous character of this internal type of failure, it seemed to us essential to know whether the defects were characteristic of certain rollings at the mills, or whether they were present only in individual rails, or whether they developed in rails generally owing to certain conditions of track or of traffic. In order to gain information regarding these matters, rails were removed from track upon both sides of and adjoining various rails which failed in service showing the internal transverse cracks or fissures. The rails thus removed had no apparent defects. They were placed under the drop test head down, and a weight of 2,000 lb. was let fall from a height of 18 ft. at frequent intervals along their entire length. Under these conditions the rails tested would have been broken had the slightest crack or fissure been present, but not a single failure occurred in any of the rails thus tested, although they were bent and twisted by the force of the drop test. The composition of these rails was within the same range as that of the rails which contained the internal cracks, some of them being harder and some softer. As a further test, other rails of the same



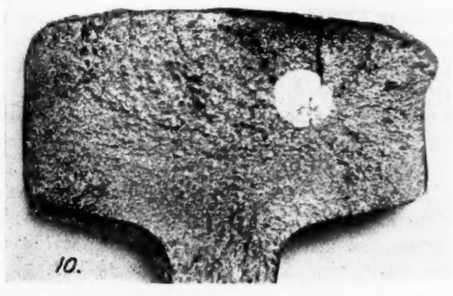
The Same Rail, Polished and Etched, Showing Unsoundness



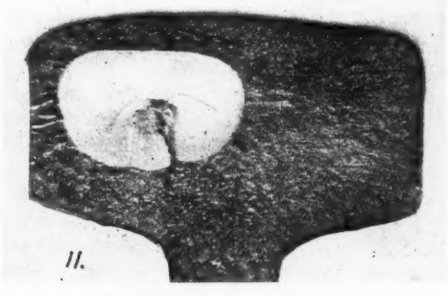
A Transverse Section of the Same Rail, Magnified 50 Diameters



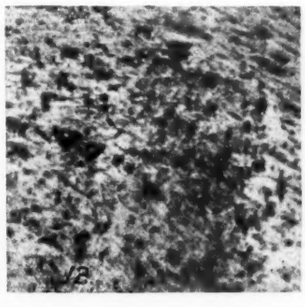
A Longitudinal Section of the Same Rail, Magnified 50 Diameters



Bessemer Steel Rail Showing "Embryo" Internal Transverse Crack



Open Hearth Steel Rail Showing Development of Internal Transverse Crack



Open Hearth American Rail — Magnified 50 Diameters — in Which Internal Defects Developed After a Few Months' Service, Showing Porous, Dirty Steel

*Besitzt Thomaseisen die Eigenschaften eines guten Brückenmalenales? C. H. Haberkalt and Anton Ritter von Dormus.—p. 16.

†Proc. International Association for Testing Materials, 1912, A78.

general weight and composition were removed from track at random from locations where the traffic was heavy. These rails were also tested, head down, under the drop, along their length without finding a single indication of the defects.

The results cited above proved that track or traffic conditions were not the prime cause of the growth of the cracks, particularly since we found that they did not appear upon the lighter sections of rails which had been in service under the same conditions in some cases for years, and the inference was clear that the difference in the service value of the rails was simply a result of difference in the quality of the steel, as was the case in Austria. These conclusions, have been fully confirmed by critical comparative study of rails which have contained these defects, and of those which under the same condition of traffic did not contain them. The difference in service simply means that the rails which failed contained defects of manufacture which so weakened their powers of resistance that they were overloaded by ordinary weights and stresses which exerted no injurious effect upon rails in which the steel was sound and properly made.

As an example of the defective quality of steel which results in internal transverse cracks after short service, we give photographs of an open-hearth 100-lb. rail which failed in track after less than two months' service, owing to the above mentioned defects. Fig. 5 shows two internal transverse cracks extending over more than one-half the area of the head of the rail within about one-half inch of one another, joined by a longitudinal crack along the rail about one-half inch from the top of the head. Fig. 6 represents the polished section showing the longitudinal crack and also a diagonal longitudinal split. Fig. 7 shows this same section etched and indicates clearly the defective condition of the steel, while Fig. 8 is a microscopic section of the steel close to one of the defects, upon the gage side of the head one-half inch from the top. The section was polished but not etched, and this figure represents the transverse surface magnified 50 diameters. Fig. 9 is taken from the same section, but it is a longitudinal view. These sections show very clearly the porous, weak and unserviceable condition of the steel and give clear testimony as to the cause of the brief life in service. The composition of this rail was as shown in the following table:

Rail		Heat Analysis
Carbon	.78 per cent	.72 per cent.
Phosphorus	.050 per cent.	.037 per cent.
Manganese	.84 per cent.	.86 per cent.
Sulphur	.032 per cent.	.040 per cent.

This composition does not indicate the cause of failure. The rail was the second in the ingot—a "B" rail, equivalent to a cropping of over 30 per cent. As illustrations of the growth of these internal defects we give below Fig. 10 and Fig. 11, the former from Bessemer and the latter from open-hearth steel. It will be understood that in course of time the small crack shown in Fig. 10 would develop to the size shown in Fig. 11 or Fig. 5, if failure did not previously result.

Fig. 12 shows the character of steel found in another open hearth rail which developed internal transverse cracks in less than six months' service. The composition of this rail was as follows:

Carbon	.70 per cent.
Phosphorus	.027 per cent.
Manganese	.97 per cent.
Sulphur	.055 per cent.

The photo-micrograph is magnified 50 diameters, and it will be seen that the steel is excessively dirty, fully accounting for the weakness which resulted in the failure.

The illustrations which have been given and the statements made are an emphatic indication of the need of uniform and careful mill practice, not merely under present conditions of American railroad practice, but equally so under Austrian conditions 15 years ago. Absolute perfection in the manufacture of steel rails is not expected, nor is this necessary to ensure safety, but it is of the greatest moment to railroads and to the traveling public that sufficient care shall be exercised by the mills to guard against the defective condition—the unsoundness or the brittleness—which is liable to result in failure in service, and it should also be the constant effort of every mill to make the supervision, inspection, and test of its output sufficiently thorough to detect and to reject the material which is defective and unserviceable. Inspection and supervision of this character and effectiveness should be undertaken by every mill as a necessary safeguard of the good name of its product, apart from considerations of service, and it is equally important that steps should also be taken by it to be on the watch for and to eradicate the slightest disposition upon the part of any member of its force—such as payment upon a tonnage-accepted basis tends to generate—to secure the acceptance of the greatest possible percentage of output without regard to the quality of the steel, or the likelihood of safe and efficient service.

THE RATE ADVANCE HEARINGS

On Monday the commission resumed its hearings in the application of the eastern roads for 5 per cent. advances in freight rates. The representative of the Pittsburgh Coal Company protested in the first place against the fact that the commission was calling on shippers to present their protest against advanced rates before the railroads had submitted enough evidence to justify such increases. It was claimed by the representative of the coal company that the law placed the burden of proof upon the railroad company and that the shippers needed only to be heard in rebuttal after the roads had made out a *prima facie* case. This he claimed they had not so far done. Coal interests claimed that if the roads had undertaken to justify an increase in specific rates they would have been quite unable to justify an increase in the rate on bituminous coal, and it is such justification that the law has in mind when it places the burden of proof on the railroad. Professor Edward F. Meade, of the University of Pennsylvania, was called to testify concerning the financial condition of the railroads serving the Pittsburgh district and carrying bituminous coal, but his oral testimony was postponed until statements could be printed giving the statistics which he had prepared.

On February 3, 1914, at the opening of the hearing Commissioner Harlan made the following statement:

Before going on this morning with the hearing of the special issues involved in these intervening petitions, I wish to say a word or two in reference to the main case.

In the order of the commission instituting the proceeding the first question of inquiry is:

Do the present rates of transportation yield adequate revenues to common carriers by railroad operating in official classification territory?

Upon that question the carriers have submitted of record many exhibits and have supplemented them by oral testimony. Those exhibits show a substantial increase in the rate and aggregate amounts of taxes assesed upon the several properties of these carrier companies by the various states through which their rails extend. They also show a substantial increase during the last few years in the rate and aggregate amounts of wages paid by the several railroads to their employees. The exhibits, together with the testimony already submitted, tend to show a diminishing net revenue and a diminishing net income.

The carriers, however, have not yet submitted all the evidence and testimony that they desire to offer in order to show a present inadequacy of revenues. Moreover, their witnesses have not yet been cross-examined; certain independent investigations of the books of the carriers undertaken by the commission have not yet been completed; and many shippers who have interested themselves in the inquiry and are affected by the proposed increase in rates have not yet been afforded an opportunity to be heard. Under these circumstances, and in view of the full hearing required by law and of the desire of the commission to be fully advised with respect to all sides of the important questions

involved in the proceeding, it is manifestly too early to draw any final inferences or to reach any final conclusions on the record as it now stands.

On the assumption that their evidence and testimony, when fully spread of record, will demonstrate that their revenues are not adequate, the carriers, as a solution of the situation, have proposed a general increase in their rates. The increases suggested by them are commonly referred to as a general increase of 5 per cent. As a matter of fact, although some of the proposed rates are slightly less than 3 per cent. higher than the present rates, on the other hand, some of them are as much as 50 per cent. higher than the existing rates. Increased rates very probably will afford the carriers increased revenues. The commission, however, has set for itself a broader inquiry in the proceeding. If the revenues of the carriers, when the record is closed, are shown to be inadequate the question asked by the commission, in the order instituting the investigation, is:

What general course may carriers pursue to meet the situation?

On that question the statements and evidence offered by the carriers do not furnish the information deemed necessary by the commission. In order to ascertain what course the carriers may properly pursue to meet the situation, the commission requires additional information with a view to determining the causes of the diminishing net revenue and the diminishing net income. It has therefore requested the carriers to answer certain questions relating to the conservation of their revenues, to economy in operation, and to other matters that are regarded by the commission as important in order that it may have a full understanding of the situation. It has not yet been possible for the carriers to answer these questions fully. The investigation recently completed into the relation of carriers to plant railways controlled by industries in official classification territory disclosed that allowances, huge in the aggregate, are being made by carriers directly or indirectly to the industries in the form of (*a*) divisions out of the rate; (*b*) per diem reclaims; (*c*) remission of demurrage, and (*d*) furnace allowances. It is also disclosed that the extensive free services by the carriers incident to the spotting of cars on plant railways very largely increases their operating expenses. The report in the *Industrial Railways Case,* just announced, shows that these allowances and free services, which are fruitful sources of unlawful discriminations against the small shipper, are also a heavy drain upon the revenues of the carriers. The aggregate amount of the allowances and the cost of the free services in official classification territory were estimated in that report to deplete the carriers' revenues by not less than $15,000,000 a year. Action should clearly be taken by the carriers forthwith to abolish all such illegal allowances and free services.

Other investigations undertaken by the commission show that other extensive services are rendered by carriers without charge in addition to the rate, and the investigations tend to show that these free services often become the means of unjust discriminations against the smaller shippers. They also add largely to the carriers' cost of operation. Among such services is the so-called trap or ferry car service, by means of which the carriers collect and deliver the traffic of many large shippers at their store doors, saving them the expense of cartage which other shippers under the same rate must pay. This has grown until the service has become a burdensome and expensive one to the carriers. Free store-door delivery for the larger shippers is also effected by certain forms of lighterage, a growing item of expense to the carriers. By means of drayage, and in other ways, store-door delivery is effected for many shippers at the expense of the carriers, while the mass of the shippers using the same rates have the benefit of no such services, but bear the expense themselves. In many cases the carriers also offer a free service of elevation, and often without charge and at substantial cost to themselves permit reconsignment and diversion in transit. It is practically the universal custom also to spot cars on private spur and switch tracks without charge. Obviously all such services are of special value to such shippers as are in a position to enjoy them, but their cost constitutes a heavy drain upon the carriers. Just what the extent of this drain may be is not yet known to the commission and probably not now fully known to the carriers themselves.

I have spoken of these services as free services, not meaning thereby that they are not authorized in the tariffs of the carriers, but only that they are available to a relatively small number of shippers without addition to the rate which the mass of shippers have to pay without having the opportunity to have the benefit of any such services. I shall not venture to make any definite estimate in figures at to what it costs the carriers to render these services, or any estimate of the revenues that would accrue to them for the services under charges that all would regard as reasonable. No well-informed person, however, can doubt that the discontinuance of these free services would save the carriers millions of dollars of expense annually, nor can any well-informed person doubt that if each such service should be measured in relation to its cost and its value and the general conditions surrounding it, and should then be made to contribute on a reasonable basis to the revenues of the carriers performing it, the income of the carriers would be increased by many million dollars a year. To the extent therefore that these free services may justly be said to account for or contribute to any inadequacy in the revenues of the carriers, to that extent it would seem to follow that the proposed increase in rates means that the general shipping public must accept increased rate burdens in order that the carriers may continue without charge to render these valuable and costly services to a relatively small number of shippers. The propriety, therefore, under existing circumstances of discontinuing the performance of these special services without charge is manifestly a matter that should receive immediate consideration.

In making these observations it must be understood that the commission is not taking this means of indicating that the carriers must adopt this method of increasing their income and may not adopt another method. Nor must it be understood from what has been said that I am announcing any definite views for the commission on this question of free services. What I have said is simply a point of view as to which the commission has reached no conclusions but upon which it desires light and information based on the experience both of the carriers and the shippers. What I intend to make clear is that the commission must necessarily look at the case from all points of view in order that we may be in a position to indicate what course, in justice to the general shipping public, as well as to themselves, the carriers may pursue to meet the situation should additional revenues be needed.

At an early day, therefore, it is the purpose of the commission to set for hearing the question of the propriety of making reasonable charges for the free services that I have described, and more particularly for the service of spotting cars on private spur and switch tracks.

THE ENGLISH CHANNEL TUNNEL.—At a recent meeting of the Royal Society of Arts, Arthur Fell, M. P., discussed in great detail the project for a tunnel under the English Channel. He discussed the latest proposals that had been offered as to the best means of construction, and told what was looked for as far as operation was concerned. It is expected that the tunnel will emerge into the air behind the cliffs about a mile or a mile and a half inland from the shore at each end. The entrances will be under the control of the forts at Dover and Calais. The traffic of the tunnel will be operated by electricity. The military authorities of England, having it in mind that England is desirous of retaining her insular position, have exacted the concession that the sole power station shall be at Dover, so that the tunnel traffic will be under the complete control of the English. Trains will run from London to Dover by steam. Five minutes will suffice in changing the electric engines and five minutes again at Wissant, near Calais, so that Paris will be reached with but two stops. The day trains will of course have dining cars and the night trains sleeping cars. The engineers now consider that the tunnel can be completed in eight years at the most.

Remarkable Railway Progress in Canada

Record of New Work Under Way and New Work Begun in Striking Contrast to the United States

By J. L. Payne
Comptroller of Statistics, Department of Railways and Canals

Canada has had another great railway year. Unprecedented as was the progress made in 1912, the year ended June 30 last stands out, by every recognized standard of valuation, unique and splendid. It was my privilege last year to tell in the columns of the *Railway Age Gazette* the story of development and expansion as revealed by official statistics for 1912. It is again necessary to write in the superlative in presenting the facts with respect to 1913. I shall do so as succinctly as the case will permit.

Dealing first with the important matter of capitalization, it may be said that during the year $100,483,633 was added to the liability. This increment left the total at $1,548,256,796, which was slightly below the official aggregate for 1912, for the sufficient reason that a thorough and much-needed revision had been made of the capital statement. In the days of loose methods there had been carried along in the account a considerable volume of extinct issues and duplication, but in Canada, as in the United States, there had for years been a shrinking from the task of pruning away the useless material. When the whittlings and excisions were over, however, it was found that upwards of $157,000,000 had been removed. By this process has been established a sound foundation, upon which the capital structure of the future may safely rest. Hitherto we have been compelled to assert many qualifications before permitting deductions to be drawn from the capital statement. Now that a revision has been carried out, judicially and carefully, we know for the first time with accuracy where the railways of Canada stand.

The total of $1,548,256,796 was made up of the following items: Stocks $759,645,016, debenture stock $163,257,224 and funded debt $625,354,556. This debenture stock appears for the first time as a separate item. Hitherto it has been classified under the head of funded debt. It attaches wholly to the Canadian Pacific. Other railways have debenture stock, but they involve mortgage conditions which do not separate them essentially from ordinary bonds. The Canadian Pacific issue stands by itself in that it provides a lien on the entire property of the company for nothing more than a fixed rate of interest. There is no security for principal, and the stock itself is perpetual. It is worth while perhaps to give emphasis, in the light of this explanation, to the rather extraordinary position which the Canadian Pacific, operating the largest railway system in the world, reached in 1913. By the cancellation of mortgage bonds the funded debt of the company was reduced to the nominal amount of $17,687,520. It is understood that this relatively trifling obligation will be extinguished during the current year. On June 30 last the Canadian Pacific had outstanding the following capital liability: Common stock $200,000,000, preferred $74,331,340, consolidated debenture stock $163,257,224, and funded debt $17,687,520—making a total of $455,276,084. The fact that the common stock pays a dividend of 10 per cent., and has a speculative value because of occasional contingent rights attaching, it has risen as high in the market as $285 per share. It stood at the time of writing at $223. Why should the company issue debenture stock or bonds at 4 per cent. when it can get $200 or more for $100 worth of unsecured common stock? Under its original charter it is obliged to lower its freight rates when the common stock earns a dividend of more than 10 per cent., and possibly it is regarded as sound policy to keep away from that point by concentrating, as far as may be practicable, capital obligations in common stock. The company has huge plans for extensions and betterments.

So far as the liability of all the railways of the Dominion are concerned, the revision to which allusion has been made left it at $61,167 per mile for the lines to which it applied. The mortgage liability was $25,601 per mile, which must be regarded as highly satisfactory. Interest was paid on every dollar of the amount indicated, although some of the payments were made indirectly and therefore are not included in the $17,980,913 which appears in the income account for the year. There has not been an instance of default for many years, and it was such a condition which led Sir George Paish to declare in a recent speech that Canadian railway securities stood high in the British market. It is perhaps worthy of mention that during the year the additions to funded debt included $6,521,617 of equipment trust obligations, showing the rising popularity of this method of acquiring rolling stock.

One of the outstanding features of 1913 was the addition of 2,576.30 to operative mileage. The largest previous addition was 1,327 miles in 1912. The total on June 30 last stood at 29,303.53 miles, which brought Canada into sixth place among the nations of the world. Seventy per cent. of the new mileage in 1913 was located west of Ontario, although Ontario itself got 454 miles, and Quebec 103. The Maritime Provinces will not get a material lift in that respect until the eastern section of the Grand Trunk Pacific reaches an operating status. The bringing in of 1,400 miles of the western division of this new transcontinental line was the principal item in the total increase for 1913. It is expected that the whole main line, from ocean to ocean, will be in operation before the end of 1914. For convenience to the eye the following table shows the development of main track mileage since 1888 by five-year periods:

1888	12,163	1903	18,988
1893	15,005	1908	22,966
1898	16,870	1913	29,304

The most striking, and unquestionably the most significant, fact revealed by the statistics of 1913 was the mileage under construction. Considerable care was taken to gather authentic data in that relation. On June 30, 1912, there were throughout the Dominion 8,826 miles in various stages of construction. On June 30, 1913, the total had risen to 18,648 miles. Having regard to the 2,576 miles brought into operation during the year, this means that the addition to mileage under construction in 1913 was 12,398. Of the 18,648 miles in process of building, 6,558 were surveyed, 8,651 miles under contract, 2,956 miles completed and 542 miles unofficially in actual operation. Of all the mileage under way 82 per cent., or 15,602 miles, was in the four western provinces. These figures are really amazing. There were not by 508 miles as many miles of line in operation throughout Canada in 1901 as were under construction in 1913. Looking at it in another way: There were more miles of line under construction in Canada in 1913 than were in operation in Italy and Spain combined, in Australia and New Zealand, or in Sweden, Norway, Denmark, Switzerland and Roumania joined. This situation from the viewpoint of capital, prospective transportation facilities, equipment required, labor and the effect on settlement in the west is most suggestive. It tells the world what Canadians are doing to realize on their vast and valuable heritage. In particular, it shows the people of the United States what aggressive neighbors they have, and customers too. It may be of interest to say that the labor conditions in the western provinces were more favorable for construction

work in 1913 than they were for several years past, due no doubt in part to swelling immigration.

This railway growth has carried with it proportionate increases of expenditure and liability by the Dominion and provincial governments. In fact, the railway progress of Canada can only be understood by having a clear conception of the part which government has played, is playing, and will play in the matter. Direct cash aid to the amount of $9,758,084 was paid in 1913, and guarantees of principal and interest were given on bonds to the extent of $29,890,329. These guarantees have become a popular form of aid to railways, and have to a large extent taken the place of cash subventions. On June 30 last the outstanding liability under this head was $274,960,374. Of this amount $95,486,590 stood against the Dominion, and $179,473,784 against the provinces —chiefly the western provinces. During the next two or three years these obligations are likely to be substantially increased, for it will be suspected from the figures given regarding construction that Canada has under way very large railway plans. With the cash subsidy account standing at $217,830,158, guarantees at $274,960,374, expenditure on the eastern section of the Grand Trunk Pacific (which is being built entirely by government) at $130,000,000, and the cost of state operated lines at $127,000,000, plus upwards of 50,000,000 acres of land, it will be seen that the people of Canada have done a great deal, more perhaps than any other people under the sun, to secure railway facilities. When state projects now in progress are taken into the reckoning, notably the Hudson's Bay Railway, I am quite prepared to show that the railway account will mount close up to the billion dollar mark. If the whole transportation account were made up, including what has been done by government for carriers by water, the aggregate will not fall far below a billion and a half. The nation of less than eight millions which has sacrificed that much has at least shown itself to be in deadly earnest.

Traffic made large gains in 1913. For the first time, freight passed the one hundred million tons mark. The actual total was 106,992,710 tons, which was 17,548,379 tons ahead of the record for 1912. Passengers also showed a gratifying gain of 5,106,584 and aggregated 46,230,765. It is quite evident that both passenger and freight business are commencing to show the uplift of increased operating mileage, although it is a railway proverb that good results are invariably diluted by the opening up of new territory. There is a reasonable prospect of continued expansion in freight traffic. The showing since 1883—which is really like yesterday in the railway life of the continent—is striking:

	Tons		Tons
1888	11,416,791	1903	22,148,742
1893	13,618,027	1908	34,044,992
1898	18,444,049	1913	106,992,710

Even a cursory examination of these figures will show that the railways of Canada have struck a sturdy stride in the matter of freight tonnage. From 1888 to 1908, a period of 20 years, the growth was a shade under 200 per cent., yet during the past five years there was a betterment of 219 per cent. Putting it in another and perhaps more effective way, there was a gain of 22,628,201 tons in the twenty years up to 1908; while in quarter of that time, between 1908 and 1913, the increment was 72,947,718 tons. This inspiring result has been accompanied by one or two features which confirm the excellent traffic outlook to which I have alluded. There has been a substantial improvement in freight density and in the trainload—suggesting wholesome conditions at both ends of the problem. The facts are not available anterior to 1907, when the Interstate Commerce reporting schedules and classifications were adopted by Canada, but during the intervening six years freight density has risen from 518,486 ton miles per mile of line to 785,820. During the same period, the trainload has come up from an average of 260 tons to 342. This result has carried with it an increase in the average carload from 15.37 tons to 19.01. Thus the traffic field has grown richer, and the facilities for exploiting it have also been improved.

The geographical character of the traffic field in Canada, to which allusion has just been made, will be suggested by two or three statistical facts. The average passenger journey in 1913 was 71 miles, while the average passenger train consisted of 5.6 cars, with an average of 11.1 passengers per car. With the largest average passenger journey in the world, these other items will show what room there is for expansion without taxing train capacity. The same observation applies to freight. The average haul since 1906 has hovered between 183 and 218 miles, which happens to stand also at the top, while the trainload indicated in a preceding paragraph falls considerably below the American average. We are growing in the right direction, at an encouraging rate, and with plenty of room between present results and the possible maximum. As I pointed out once before in these columns, and the fact is pertinent here, Canada has the highest railway mileage in the world measured by population, and the lowest per square mile of territory. This situation will be made intelligible by a glance at the map in the light of the figures here given. To avoid the lengthening of this sketch beyond reasonable limits, it must be assumed by the reader that the advance in traffic results in 1913 was accompanied by proportionate increases in train, locomotive and car mileage. There is, however, one item which I must add. Of the 106,992,710 tons of freight hauled, 27,317,214 tons, or a little over 25 per cent., were received by United States roads. This is exclusively the traffic which American lines operating in Canada brought in, and does not include tonnage handed over to Canadian railways at the border. Comparisons cannot be made in this regard with previous years, since this information was ascertained in 1913 for the first time.

Coming to the financial results of railway operations in 1913, I have before me a congenial task. It always gives a fillip to patriotism to talk in big figures about one's country, but here I find myself shifting from pride to amazement. During the year directly under review the railways of Canada had gross earnings amounting to $256,702,703.32, or $37,298,950.53 more than for 1912. It is only by comparison that one may grasp the significance of these figures. Let me, therefore, set down by five-year periods the gross earnings of Canadian railways since 1888—a short 25 years:

1888	$42,159,152	1903	$96,064,526
1893	52,042,396	1908	146,918,314
1898	59,715,105	1913	256,702,703

Here the eye helps the reader to realize the ratio of growth. But we still have to fall back on illustrative comparisons. During the 20 years between 1888 and 1908 the increment amounted to $104,759,162. Since 1908 the gain has reached $109,984,389. In other words, there has been a greater addition to earnings within five years than was achieved during the preceding twenty years. The betterment for 1913 over 1912 was equal to 17 per cent. With these basic facts in mind, it may be well to glance for a moment at the sources of gross earnings. Comparing 1912 and 1913, the following data will be enlightening:

Passenger service	$65,048,187	$74,431,994
Freight service	149,961,140	177,089,373
Stations and train privileges	1,086,687	1,566,721
Telegraphs, rents, etc	3,307,739	3,614,615
	$219,403,753	$256,702,703

It will be seen that freight made the principal gain, as was natural under the circumstances. The following items in tabular form of information with regard to gross earnings for 1913, compared with the facts relating to five years ago, will be helpful.

	1908	1913
Earnings per mile	$6,397	$8,751
Earnings per train mile	$1.869	$2.263
Earnings per passenger	$1.175	$1.394
Earnings per ton	$1.486	$1.632
Earnings per passenger mile—cents	1.920	1.976
Earnings per ton mile—cent	.723	.758

Operating expenses in 1913 were $182,011,690.33, or $31,-

285,150.46 more than for 1912. While gross earnings for the year increased 17 per cent., operating cost increased 20.7 per cent. The ratio of the latter to the former was 70.9, as against 68.7 in 1912. These facts will suggest that Canadian railways have not been exempt from the problem which persists year after year in the United States—ascending operating expenses. Following were the divisions of operating expenses in 1909 and 1913:

	1909	1913
Maintenance of way	$21,153,274	$35,933,323
Equipment	21,510,304	37,289,718
Traffic expenses	3,798,825	6,143,201
Transportation	54,284,587	96,688,264
General expenses	3,853,094	5,957,184
Total	$104,600,084	$182,011,690

Administrative policy has followed sound lines in the matter of maintenance of way and structures and maintenance of equipment, as the following little table will show:

	1909		1913	
	Per mile	Per cent. to total	Per mile	Per cent. to total
Way and structures	$878	20.22	$1,225	19.74
Equipment	$892	20.56	$1,271	20.48

The high cost of railway living is well illustrated in the steadily advancing expense of running a train one mile. In 1903 it was $1.117; in 1913 it was $1.604—an increase in ten years of 43 per cent. Within five years operating expenses per mile of line have risen from $4,673.30 to $6,204.38. In some degree at least, such a situation reveals the seriously lowered purchasing power of earnings. Each dollar of income buys less of what a railway requires, the necessaries of life, if you will, than it did five, ten and fifteen years ago.

The whole financial situation is summed up in the following income account:

Rail operations—		
Operating revenues	$256,702,703.32	
Operating expenses	182,011,690.33	
Net operating revenue		$74,691,012.99
Outside operations—		
Revenue	$24,588,410.10	
Expenses	17,889,622.76	
Balance	$6,698,787.34	
Other sources	10,716,034.01	17,414,821.35
		$92,105,834.34
Less taxes		2,430,186.26
Gross corporate income		$86,675,648.08
Deductions—		
Lease of other roads	$3,820,033.03	
Other rents	5,863,175.88	
Other properties	27,439.01	
Interest, funded debt	17,989,099.34	
Other interest	746,973.20	
Sinking funds	15,037.20	
Other deductions	1,616,878.04	30,078,636.36
Net corporate income		$57,523,126.74
Disposal of net income—		
Dividends—common	$19,598,875.00	
Dividends—preferred	14,071,685.62	
Additions and betterments	103,709.15	
Reserves	7,521.89	
Miscellaneous	218,341.16	34,000,132.82
To profit and loss		$23,438,119.73

The item of dividends is sufficiently important to justify elaboration. It has been a growing item. Five years ago it amounted to $12,955,243. In 1913 it had advanced to $33,670,561. An increment of $20,715,318 within five years, or 160 per cent., is indicative of strength and capable administration. Such a comment is warranted by all the results disclosed in this summary of statistical facts, and it is something of which the railways of Canada may well be proud. The railway securities of the Dominion have a strong position in the markets of the world, and there is certainly nothing in the financial statement for 1913 to modify confidence. It has not been a part of the statistical system to show where the stocks and bonds of our railways are held—the proportion at home or abroad, for example—but an effort will be made during the current year to gather that information. I think it might be safely assumed that a very large proportion of all the bonds is held abroad, most of it in Great Britain. England has, speaking broadly, built the railways of the world, and according to Sir George Paish, the eminent authority, she is in a better position than ever to serve as the world's banker in that regard. It is inevitable that Canada will be obliged to avail herself very freely of that source of supply during the next decade, for she has, as I have said, large railway construction work in hand and in contemplation.

Expanding mileage and traffic called for large additions to equipment in 1913, and this is an aspect of our railway situation in which the industries of the United States are concerned. The following table will show the rolling stock situation on June 30 last, with the increases for the year:

	Number	Increase
Locomotives	5,119	635
Cars in passenger service	5,696	750
Cars in freight service	182,221	41,303
Cars in company's service	15,526	5,060

The addition to freight car supply was equal to 16,034 per 1,000 miles of new line. When it is remembered that this is much beyond the average of established lines having a high freight density, it will be realized that a very large proportion of the increment for 1913 was for the handling of a rapidly expanding traffic on old mileage. What has been done for equipment on the whole during the past five years will be gathered from the following comparison:

	1908	1913
Locomotives	3,872	5,119
Freight cars	115,709	182,221
Passenger cars	4,026	5,696

The principal additions to freight equipment applied to box cars, for which there is a growing demand. It scarcely indicates the actual betterment in rolling stock conditions to merely count units. Account must also be taken to capacity. In that respect the railways of Canada have responded to both the fashion and judgment of the times. The purchases in 1913 were very largely of heavier and more capacious cars, and new locomotives were also of greater weight and higher tractive power. Whether or not this persistent drifting toward larger and heavier units is sound railway economy from every aspect is a matter of which the mere statistician ought not perhaps to express an opinion, but as an onlooker, using the only brains available to me, I "hae ma doots." Be that as it may, it has been observed that American industries have direct interest in the equipment situation on this side of the line. That interest is revealed in the trade returns. For the year ended March 31 last I find that Canada imported from the United States 93 passenger cars, valued at $302,577; 8,151 box and flat cars, valued at $6,488,672; 6,844 "other cars," valued at $1,175,709, and parts of cars valued at $370,698—making a total of $8,337,656. To this should be added 200 locomotives, valued at $783,987, and locomotive parts $126,975, giving a final aggregate of $9,248,618. Of course, some of these locomotives were second hand, as the cost suggests. That makes, however, a respectable slice of business for one year, and it might be taken for granted that purchases on a generous scale will continue. In 1912 the locomotive and car shops of Canada had all the orders on their books they could handle for two years, and urgent domestic needs are certain to cause an overflow for some time to come.

I am compelled to pass over a considerable mass of statistical data in order to save myself from becoming tedious. A word or two, however, will not be amiss with regard to three matters—employees, fuel and ties. The number of employees grew from 155,901 in 1912 to 178,652 in 1913, while the aggregate salaries and wages rose from $94,237,623 to $115,749,825. Five years ago the ratio of salaries and wages to gross earnings was 41.09, in 1913 it was 45.09. The ratio to operating expenses during the same period increased from 56.26 to 63.59. These are suggestive comparisons. In this relation it may not be out of place to say that the Department of Railways and Canals could not consent to the placing of the statistical schedules relating to employees on the socio-

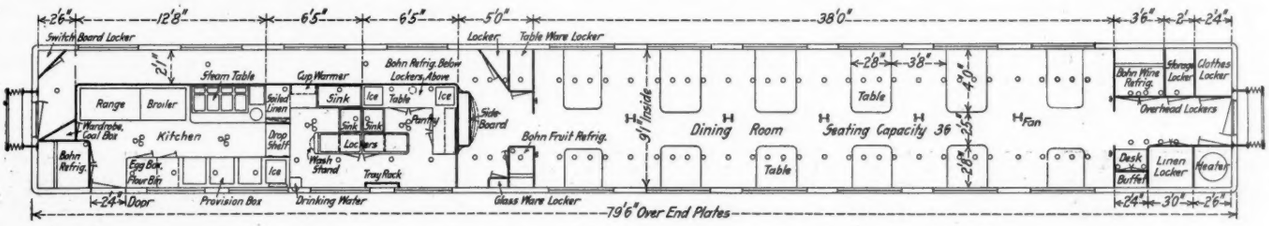
logical basis recently proposed by the Interstate Commerce Commission. It was decided, however, to widen the classes and to revise the unit of service for train crews. Further than that it was not deemed expedient to go. The reference to fuel will be limited to the statement that oil has within the past two or three years come into the account. The place it has thus quickly taken will be seen from the fact that the consumption by locomotives was 1,729,577 gallons in 1912 and had reached 31,087,252 gallons in 1913. With regard to ties, it might be observed that new mileage, joined with the normal need for renewals, has brought this item up to a position of first class importance. There were not less than 22,000,000 laid down in 1913, and the average cost was 48 cents. This was double the cost of seventeen years ago, and it has led to a largely increased use of treated wood. There was doubt as to the economy of creosoting sleepers when they cost from 12 to 23 cents, as was the case in 1897.

In conclusion, it will be readily seen that the expansion of railway interests in Canada has compelled our chief operating lines to resort to the higher economies in order to meet the falling purchasing power of earnings. Their efforts in that respect have been directed in particular toward double tracking and the improvement of terminal facilities. This work is proceeding as rapidly as the money situation will permit. The Canadian Pacific in particular has commenced the execution of very large plans, involving the expenditure of many millions, and has also under consideration the utilization of huge water powers in the mountain division for the development of electric motive force, both for auxiliary and ordinary tractive purposes. In the laying out of terminals for new lines the builders of today are profiting by the experience of those who had not the vision of the Canada of today, and are appropriating large areas while land may be had at reasonable cost. Yet with all the disabilities which have been created by modern conditions, it may be said that the railways of the Dominion are in a prosperous and strong position. Their capital burden is relatively light, and the buoyancy of revenue has enabled them, in rugged faith, to make at least some provisions for the larger things which lie ahead, but which twenty short years ago were not even in their dreams. In this reconstructive work they are not likely to be hampered by legislative tinkering. The Canadian Parliament may be trusted to reflect the disposition of a people deeply convinced of the factors which make for national development, and avid, in that conviction, of transportation facilities.

NEW DINING CARS FOR THE BURLINGTON

The Chicago, Burlington & Quincy, in anticipating the possibility of government regulation of passenger train car design, has drawn up general specifications for all such cars, using the government specifications for postal cars as a basis. The first cars to be built under these new specifications are the five dining cars that recently have been furnished to the road by the Pullman Company. The general design is such that it may be readily used, with the necessary modifications, for any other passenger train cars.

The railroad has endeavored, so far as possible, to use standard structural steel shapes throughout, and where necessary to employ special shapes, has resorted to the use of pressed steel. These special shapes have been so designed that they may be used in various construction details throughout the car, thereby reducing the number of dies necessary for their manufacture. Effort has also been made to keep away from the use of patented devices, thus eliminating the cost of royalties and giving the various car builders an opportunity to bid on a much more equal basis.



Floor Plan of the Burlington Dining Car

The new dining cars are 79 ft. 6 in. long over end sills, and are of the dummy end construction, which permits of seating 36 persons and gives a larger and more convenient kitchen. A side door 2 ft. 4 in. wide, opening directly into the kitchen, has been provided so that the car may easily be provisioned. The kitchen has been laid out according to the standard practice of the Pennsylvania Lines and is provided with all the latest improvements. The car is of all steel construction, wood being used only in the floors and windows. These cars were designed to have the entire load between the bolsters carried by the side construction, leaving the center sills of the underframe to take care of the buffing and draft strains. To do this the cross bearers were made sufficiently stiff to transmit any load coming on the center sills to the sides of the car. The underframe is of simple construction and is made up mostly of steel shapes. All the pressed steel work serving similar purposes is made from one die, and therefore at a minimum expense.

New Standard Dining Car for the Chicago, Burlington & Quincy

The center sills are composed of two 15 in. 35 lb. channels spaced 16 in. apart. They have a top cover plate 5/16 in. thick by 2 ft. 4 in. wide extending from end sill to end sill, and a bottom cover plate 5/8 in. by 2 ft., which only extends between the body bolsters. The side sills are made up of 4 in., 8.2 lb. Z-bars, and extend the full length of the car, being riveted to the cross bearers by four 3/4 in. rivets and thoroughly anchored in the end

sills by angle gusset plates. The end braces are made of ⅜ in. plate being pressed to the shape of a channel 9 in. wide and flanged out at the ends. The end sill is made up entirely of pressed steel shapes and steel plates. A pressed angle 2½ in. x 4½ in. by 3/16 in. extends across the end of the car, being riveted to the end bracing, the small pressed steel Z-floor beams and the center sills. A 3/16 in. plate 10¾ in. wide is riveted between this angle and a pressed pan made of ⅜ in. plate, and extends down to the bottom of the end sill. A second pressed pan of the same stock is located below the first mentioned pan and is riveted to the lower part of the 3/16 in. plate mentioned above. A ½ in. by 6½ in. end sill cover plate is riveted to the outside face of these heavy pans and extends clear across the end of the car while the pressed steel shapes only extend between the corner posts and two vertical I-beams located 21½ in. each side of the center line of the car. These I-beams are the point of greatest resistance in the end construction of the car, being 12 in. wide and weighing 31.5 lb. per foot. Further bracing of the car end is provided by two 4 in., 13.8 lb., Z-bars located 15 7/16 in. each side of these I-beams, and by the two 4 in., 8.2 lb. Z-bars which form the end posts. A No. 16 gage galvanized corrugated steel plate is riveted to the floor supports and on this is laid a 1¼ in. layer of carbolith which is held in place by chicken netting fastened to the corrugated plate. Next is a layer of 1 in. hair felt. The finished flooring is laid with 2¼ in. by ¾ in. tongued and grooved maple which is nailed to nailing strips laid in the carbolith and bolted to the corrugated plate. The maple floor is underlined with waterproof paper and held ½ in. above the hair felt to provide an air space.

The outside sheathing is ⅛ in. steel plate on the inside of which is applied a layer of 3 ply Salamander. The inside sheathing is 1/16 in. steel plate and is lined with Ceilinite 3/16 in. thick.

The car is lighted by the indirect lighting system as applied by the Central Electric Company, Chicago. The lamps and reflectors are located in the deck molding at the upper edge of the lower deck and are so arranged as to be inconspicuous from the floor. There are 74-15 watt, 60-volt lamps used in the dining room proper and in the vestibule. These are arranged in 4-ft. and 1-ft. units, each unit containing four lamps and one lamp respectively. There are six 4-ft. unit sections placed one on each side of the car and the 1-ft. units are placed between the deck beams to light the car ceiling at an equal intensity. The reflector is made of No. 20 gage steel and is covered with three coats of fired cream enamel, this color being also used on the upper ceiling. The lamps are so set in the reflector that the base of the lamp will not come within the area of the reflector, in this way eliminating the absorption of light by the socket of the lamp. The reflector is covered with a double layer of glass placed on an angle to minimize the collection of dust. The two layers of glass are used to prevent dust or dirt getting into the reflector.

The car is finished in a very pleasing mottled gray color with a very little gold striping on the ceiling. The wood used in and about the windows is Mexican mahogany. The chairs are also of mahogany with Spanish leather covering. The dining tables are made of steel, and are covered with white metal. Wall sockets are applied underneath the windows and just below the tables for electric table lamps. The Commonwealth Steel Company's cast steel six-wheel trucks were applied. The various specialties applied were Miner friction draft gear class A-2-F Sharon couplers, Woods' roller side bearings, Vulcan 60,000 lb. capacity cast steel brake beams, McCord journal boxes, Christie adjustable brake heads, Westinghouse latest improved air brakes with the American slack adjuster, Railway Utility Company's ventilators, Bohn refrigerators, and 32 Willard storage battery cells, type P. R. L. The following are the general dimensions of the car:

Interior View of the Burlington Dining Car Taken by the Light from the Indirect Lighting System

Length over end sills	79 ft. 6 in.
Width over side sills	9 ft. 9½ in.
Width over all at the eaves	9 ft. 9⅜ in.
Width over clear story	6 ft. 8¾ in.
Top of rail to top of floor	4 ft. 6 7/16 in.
Top of rail to top of buffer beam	4 ft. 2⅝ in.
Wheel base of truck	11 ft.
Journals	5 in. x 9 in.
Wheels	40¼ in. (steel tired)
Wheel centers	34 in. (steel plate)

Re-Appraisal of Railway Property in Nebraska

A Brief Review of the Physical Valuation of Steam Railways Made by the State Railway Commission

By E. C. Hurd
Engineer in Charge

The Nebraska legislature in the early part of 1909 passed what was known as the Physical Valuation Enactment. This measure required the finding of the physical worth of the various utility properties in the state and placed this task upon the state railway commission, which was empowered to employ such help and agencies as were deemed proper. Further, the law outlined a certain precedence by which the estates of the steam railroads were to be considered in advance of those of others. It empowered the commission to call upon the several railroad respondents for any and all information essential to the question and provided for public hearings after the commission had made up tentative determinations of worth at which representatives of the roads could plead for such modification of the findings as they deemed proper. The law also listed somewhat in detail all of the structural elements of railways, and closed the paragraph with the following:

(i) "The value of all other articles or things belonging to and necessarily a part of the road.

(j) This section shall apply to each railroad in this state separately, and the finding of the commission shall show the total value of each railroad, the number of miles of road and the average value per mile of track. The basis to be used in arriving at such value shall be the average market value or cost of labor and material for the year ending July 1, of the year in which such valuation is made, and the values spoken of . . . shall be the amount of money found necessary to rebuild the road complete as it now stands, the same as if no road existed upon its present site, allowing for a reasonable length of time for assembling the material and doing the work necessary for bringing into existence such railroad. The proper reductions shall be made for the wear and shrinkage in value on account of age and wear of the material in the railroad under consideration."

The commission, through its engineers, began to carry out the assigned work in June, 1909. Several preliminary conferences were held in the office of the commission attended by representatives of the roads, from which resulted beneficial understandings for co-operation and procedure. Various important principles, methods and interpretations were also considered and established by the department influencing the conclusions. These matters are now largely of record, as well as the determinations resultant from the initial work which was closed in 1911. Interesting and elucidative hearings as provided closely followed. It can be said that these hearings contributed much to the investigations as a whole. Through them much information was gathered additional to that appearing in the original reports, both for the respondents and the engineering department of the commission, and also through this avenue the whole work was greatly clarified. Thus the initial and preceding valuation is mentioned, and this first work can be said to form a background for the later endeavors.

The figures for the 1909 valuation were as follows:

Reproduction cost, new	$290,905,616
Present value	249,196,180

The total roadway mileage at that time was 6,071.59 and the total track mileage 7,754.25. While the above figures are not directly comparable with those in the 1911 valuation just completed, owing to changed conditions, the construction of additional tracks, etc., they are of interest for general comparisons with the later work of the commission.

RE-VALUATION

Although the law seems to direct frequent revisions of the values found in the manner prescribed, extensive labors pertaining to other kinds of utilities prevented giving immediate and continued attention to the railroads. A re-appraisal of these properties as of July 1, 1911, including one exception for 1912, was proposed late in the year of 1911. Active steps were inaugurated by the department for attacking this problem toward the close of that year. Because of continued attention being required in the appraisal of other utilities, this work was carried on intermittently, and the tentative findings were not completed until the latter part of 1913. It should not be construed that because of the interruptions, however, any laxity was admitted in the procedure; but rather all efforts were bent to refine in every manner the former efforts, and it is trusted the results will reflect the care and study taken. No other class of public utility property has been treated for re-valuation yet by the department, except that here reviewed; and, therefore, the characteristics are individual and not comparative in this respect. Contrasted with the initial work there are affairs, it is thought, worthy of notice.

The law provides, section 5, that "To aid in arriving at such value the Railway Commission shall furnish schedules in blank covering all of the different classes of property to be valued, to each of such companies and shall require such companies to furnish reports, sworn to by their proper officers. . . ." This provision seems to refer to and was taken to mean affairs relevant to classification and form blanks. The schedule for the former work was not changed in the recent procedure, while the experience gained in the use of the first form blanks suggested numerous improvements. The 1911 revision blanks absolutely adhered to the principal list of accounts in numbering, and where more than one sheet was found necessary a letter was affixed. For convenience in typewriting and binding, all of the form sheets were 8½ inches by 14 inches. The matter suggested in different sub-headings printed on the various forms was altered considerably, although the general make-up can be said to be similar to that first used. Form blanks are an interesting study for discussion alone and there are various plans suggested. The general principle in this work was to simplify many of the general items, allowing as much latitude as possible for the respondent, but sufficiently detailed to cover salient matters; while for certain general accounts, such as shop machinery and tools, where many parts and considerable detail seem essential, the sheets should be arranged for comprehensive embracement.

The original lines laid down as to just what should be embraced within a naked physical appraisal, thus attempting to comprehend the meaning of the statute, were strictly adhered to, and have appeared in the following language:

"Physical value is the total cost in money to provide, assemble and install in place the physical factors of a plant or property, which when completed make the same entirely ready for operation; and which, primarily, include those things which are physical and tangible and susceptible of being inventoried; and secondarily, embrace certain non-physical charges which are an inseparable part of the cost of the placement of property."

Again, the Nebraska law seems to require the finding of a "Reproduction Cost New" evolved through the application of usual principles and from average prices and costs for the year for which the statement is intended, together with a "Present Value" found by applying depreciation to the former. No change was made in the later work as to these understandings, except as to the extent of the influence of use, age, wear and tear, etc., on the various items.

RIGHT OF WAY

Certain relevant and comparative experience found in a canvass of some of the accounts for re-appraisal seems to deserve mention. The method of treating rights of way and lands was not materially modified from that at first adopted, viz., the market value of all land was fixed in accordance with that found for that immediately adjacent. Except in few cases of recent purchase,

where foreign buildings existed upon the premises, all lands were considered as vacant and stripped of all improvements in finding market worth. Multiple or severance costs were based upon criteria embracing improvements for the rural locations, and generally excluding such for the station and terminal grounds. Unless the cost of acquirement (right of way or real estate agents' fees and expenses, special legal costs, special engineering, etc.) can be construed as a part of such cost, no allowance was made because of an assembled or continuous property, which might be claimed to make it more valuable for particular use. No value was granted for streets, alleys or public places occupied by the railroad, unless they had been found legally vacated for such specific use. The so-called spread method prevailed in obtaining a market value of lands composed of lots, blocks, vacated streets, alleys, etc. Briefly this is as follows: The concentrated area unit worth determined from surrounding lots or blocks was substituted into the original and similar lots and blocks and the vacated areas represented in the portions of the former streets, etc., inuring to the said lots and blocks were not given any value, thus distributing over the increased surface the concentrated value of the lot or block apportionment alone, making the unit worth relatively less, and really effecting a full allowance for the lots and blocks, as originally sub-divided while disregarding any value for the vacated grounds. The market worth for rural lands was generally averaged by counties, and applied to the s veral lines of road in consideration of such political subdivision. Because of recent court decisions, and to enable the commission to consider all likely phases of the land question, the 1911 statements embrace two complete results, one including market values with acquirement only, and another including severance costs.

Excepting certain terminal properties, there are seven railroads within the state of Nebraska. In making up the first valuations for the rights of way and station grounds for these lines there was embraced within the study a comprehensive local investigation of conditions in order to set out the measure of severance, which largely influenced the application of the so-called multiples. A composite of this survey, together with a continued study of experiences of this nature, resulted in the following tabulation, as representing that obtaining in the later appraisal:

RIGHT OF WAY AND STATION GROUNDS

Name of company	Location	Market value	Per cent., including acquirement	Railroad value
C. & N. W.	Station grounds..	$1,688,770	142	$2,398,054
	Rural	878,092	252	2,212,792
C. B. & Q.	Station grounds..	6,607,812	142	9,383,093
	Rural	2,710,383	250	6,775,957
C. R. I. & P.	Station grounds..	443,621	142	629,942
	Rural	283,002	266	752,786
C. St. P. M. & O.	Station grounds..	923,326	142	1,311,123
	Rural	329,853	251	827,931
Missouri Pacific	Station grounds..	1,014,631	142	1,440,776
	Rural	376,533	266	1,001,578
St. J. & G. I.	Station grounds..	145,097	142	206,038
	Rural	162,728	252	410,175
Union Pacific	Station grounds..	8,401,037	142	11,929,472
	Rural	1,141,601	250	2,854,902
	Totals	$25,106,487	168	$42,133,709

A concrete comparison of the two valuations for the railroad lands of the seven companies appears in this tabulation.

later date, as reflected in the figures, placed the item of Track Laying and Surfacing at about 116 per cent. of the former. The element of appreciation was also evidenced in the cost of the ballast. Admitting a partial omission in the 1909 work and placing the factor of cost under the proper headings there was added to the cost of the track material five per cent. for yard expense, and to Track Laying and Surfacing two per cent. of the labor cost for use of tools. The telegraph and telephone accounts were entirely revised, along the lines specifically set out in the special review covering the subject of telegraph. The intricate problem of dividing the ownership properly between the railroad and the telegraph companies was one of novel and unique characteristics, because of the various contracts existing. It can be said though that no great change in worth appears. For a state appraisal it has not been found consistent to undertake to distribute Shop Machinery and Tools values beyond the borders of the commonwealth, because of the lack of full information for the system. The remainder of the roadway items were treated with no changed basic prices. The entire roadway category, except Shop Machinery and Tools, was placed in re-valuation by accepting simply the betterments and additions thereto and rejecting the deductions.

A complete new appraisal was effected covering the equipment accounts. To undertake the same process indicated for the roadway presented difficult entanglements for analysis. The cost units for the principal equipment items were made up in the same manner as heretofore excepting transportation costs were made a part thereof. These freight charges were considered from the point of origin to the Missouri river, using class rates for locomotives and for certain work equipment consisting of machinery, and commodity rates for cars. For the 1909 work there existed a low ebb in equipment prices. The later work for 1911 can reasonably be said to represent a more normal condition. An analysis of the 1911 cost units shows an increase for locomotives of 101.4 per cent.; passenger cars, 101 per cent.; freight cars, 107.8 per cent., and for work equipment a relative increase above that calculated from the 1909 prices. The distribution of equipment values was arranged as heretofore, viz.: for locomotives, passenger and freight cars upon a commercial mileage basis, giving consideration to the relative weight and class used within the state to that averaged for the system. For some of the terminal properties arbitrary exceptions were made based on local habitation. In the distribution of the work equipment, the plan was to use the relative commercial mileage of locomotives and cars in certain combination with the amount or miles of track maintained.

OVERHEAD CHARGES AND CONTINGENCIES

The ever interesting factor of the so-called "overhead charges," represented in the account, General Expenditures—Contingencies, was also generally treated as heretofore. Additional information as to taxes during construction caused this sub-item to be entered at 0.6 per cent. of the fundamental costs for roadway items including equipment. In the first mentioned work no allowance was made for insurance on equipment, while in the 1911 valuation an amount approximating 0.25 per cent. of the reproduction cost new was entered. An exhaustive study of construction periods for the various working sections was re-made, adhering to the former principles, viz., determining an equated period predicated on the weight of the several roadway accounts, pro rated into mile months, the aggregate of which is assumed to approximate an investment of $3,000,000 for one year's time producing 75 miles of finished normal roadway ready for opera-

Subject	1909 Acres	1909 Market value	1909 Per cent.	1909 Railroad value	1911 Acres	1911 Market value	1911 Per cent.	1911 Railroad value
Rural	88,041	$5,465,278	238	$13,012,125	88,865	$5,882,001	246	$14,481,879
Town	16,481	18,248,879	138	25,104,046	17.073	19,233,034	136	26,142,805
Real estate	13,708	1,759,308	102	1,789,751	13,281	2,487,320	100	2,487,320
Acquirement	.....	.....	6	1,528,408	.....	.....	6	1,656,141
Totals	118,230	$25,473,466	163	$41,434,329	119,220	$27,602,354	162	$44,468,145

It will be noted from the above that the resultant in the latter case shows an accretion of acres or amounts, as well as a small increase in value per areal unit.

ROADWAY AND EQUIPMENT

Some re-molding of cost units affecting the structural items for the roadway also occurred. The increased cost of labor for the

tion. Inasmuch as there has been considerable discussion of this subject, and the arbitrary allowance of interest on money during construction together with other matters rests upon it, the re-survey as indicated was made. Of course the variation found in the numerous working sections was taken into consideration and was reflected in the conclusions. It can be said that not much difference was found in comparison with the former estimates. It may be well to add also that each working section for both calculations was considered one complete railroad, irrespective of the environments in this matter. Again based upon the working periods there was found the commensurate allowance for work train days injecting into the process a study of the relative structural weights found for each section. For this sub-element of expense the extended re-survey increased the amounts found for the general items 38 and 40. Incidentally it may be mentioned that for the 1911 appraisal no change occurred in the length of any of the working sections for any of the properties, except that one on the Union Pacific was extended from Callaway to Stapleton, an added distance of 36.87 miles of roadway, and an entirely new section was added extending from Northport to Gering and consisting of 30.64 miles of main track.

The item, Contingencies, was generally arbitrarily entered as heretofore at 4 per cent. of the sum of all fundamental accounts. No corrective or substantiating evidence of authenticity was found for this entry, except to say that in careful re-checking of inventories of other utility properties by the department actual omissions considered as a part to be embraced under contingencies were found to be relatively fully equal to that indicated.

PRESENT VALUE

The statute, section 5, reads:

"If the actual value cannot be given, then the estimated value based on the market value of labor and material necessary to duplicate the plant, from which shall be deducted the probable shrinkage in value caused by age and use of material as it exists on July 1 of the year in which such valuation is made."

Thus as aforesaid it became incumbent apparently upon the commission's engineers to find the replacement cost and calculate from a present value or state using approved rates of depreciation. The straight line method was adhered to both in the first and the succeeding efforts. All appraisals suggested under public regulation are primarily predicated upon ideal principles. The particular characteristics of each individual property no doubt should influence the final judgment. This, however, does not challenge certain ideal principles, but merely calls attention to the fact that modifications from the normal only reflect the results as related thereto. Therefore once a method is established into a valuation statement setting out theoretical depreciation, it is intended to be so balanced between the several members of the physical schedule as to reach accurate and logical results. To modify the method automatically recasts the plan of accounting, which essentially permeates the work, and to again obtain the desired resultant involves special manipulation of the physical accounts.

Not only is the above true when setting out the several phases, but from another viewpoint, extraordinary differences of employment appear. One premise may be that the reproduction cost new shall represent the proper invested cost upon which to predicate earnings together with allied matters. Should such be accepted, then the conclusions as to present value would serve but two contingent purposes that are noteworthy, viz., to set out the extent of the physical decay in order to gage service qualifications, and to estimate the remaining life, establishing therefrom an anticipated fund to care for final replacements. Another basis may be that the present state of the property as measuring the remaining investment shall be made the proper amount upon which to base earnings and allied conclusions, and in which case obviously much greater importance would attach to the said findings than in the former suggestion. Giving present value such consideration also would not minimize the related attributes outlined for the former.

It is not within the range of this review to argue over the various principles adopted into the 1909 appraisal respecting the application of depreciation. Certain accounts when cast into the present value column were maintained at 100 per cent., when it can be argued that the same were affected by elements tending to reduce worth and measured by structural conditions. In order to remove this possible criticism and at the same time have prepared statements for rational comparison with that of the former effort, there appear in the 1911 figures two columns setting out present worth. The first deductions are reached through identical methods for 1909, whereas the last column purports to show the results of relatively depreciating all accounts that can be called subject to or allied with structural decadence. In a study for the latter process some things may be interesting to note in the procedure adopted. Exceptions were taken to flatly lessening the item of Engineering and Superintendence, and also General Expenditures—Contingencies. For the former account it seemed rational to think that a certain portion of the result of the sacrifice becomes emblazoned upon enduring records and the earth's surface permanently and is not deteriorated or lost; while the remaining portion can be claimed as directly related to the roadway structural elements. To establish the division between the portion monumental and that dissipating, it was found that generally the cost approximates $1,000 per mile of roadway, and that the enduring portion approximates 0.4 of the total, while the remaining 0.6 received that depreciation found for the average of the roadway. In calculating depreciation for General Expenditures—Contingencies it seemed compatible to estimate this in part as related to the remainder of the items, and in part considered separate from that physical. This plan was as follows: Organization, administration and legal expenditures seemed to present in certain measure elements not affected by decadence, and appeared in part enduring and being the mental concept of the organized estate, somewhat akin to that described for a portion of the Engineering and Superintendence as above. No other means at hand was discerned than arbitrarily to fix the non-depreciating portion at four-fifths of the total, and thus estimate the remainder in accordance with that found for the aggregate of all the fundamental elements, inasmuch as it was assumed the same were possessed of experimental and departing characteristics, and the relationship was in evidence.

All the other sub-items appearing under the general account 42 were lessened in accordance with the average depreciation found for the total of the list.

For purposes of illustration and interesting comparisons there are given herewith departmental findings for some of the particular properties for 1911, together with the owners' reports of them. Also there is shown the departmental figures covering the total of steam railroad property in the state. No similar owners' reports can be rendered because of incompleteness of some. The departmental reports as already mentioned are founded upon the strict interpretation set out for physical value. Some of the owners' figures shown seem to indicate certain costs considered by the engineers of the commission as bordering on that beyond the physical, and which have tended to increase the amounts. Such elements as cost for financing and development together with others have been rejected, owing to the interpretation of physical worth by the department, but the probable validity of such charges was not denied as being proper to enter into a complete statement for fair value. However, upon such assumption there would be involved a comprehensive analysis and measurement of all elements of cost entering into an estate both tangible and intangible, which would be quite another matter than that undertaken here in review. The only question would be in this connection that of the final interpretation of just that which should be included within a physical appraisal, and just what elements should be excluded, and whether the commission's engineers have erred in these matters.

Incidental and additional to the amount of property of the Chicago, Burlington & Quincy as set out in both the respondents' and the department's statements herewith, there exist in a partially

assembled condition certain lines of road, which have been in this state for a considerable term of years. The company's representatives have contended that these properties are live issues and that at a seasonable time they will be completed and placed in operation, that the circumstances truly represent advance construction, and that there should be no question as to the incorporation of these values into a complete statement. Because these projects have remained abandoned for a considerable series of years and activities lending to completion at an early date are not evident, the department, though making up a statement covering them has included it only in supplemental form, and leaves the matter of deciding the question for the commission at a later date. Again it suggests rather a novel proposition as to who shall have the authority to indicate what is advance construction and how the proper amount of such shall be measured. The importance of this question is apparent. A number of other matters of perhaps equal moment were encountered in the revaluation experience, but they will not be recited here. What has been touched upon will likely forecast in limited extent that anticipated for the important federal work now pending.

Chicago & North Western

Miles of roadway, 1,071.28 Miles of track, 1,264.02

Subject	State Commission's valuation: Reproduction cost new	Present value	Present value new formula	Railway company's valuation. Reproduction cost new
1—Right of way and station grounds	.....	.....	.....	$7,037,853
(a) Mkt. val. with acquirement	$2,566,862	$2,566,862	.....	.....
(b) Inc. acq. and severance	4,610,854	4,610,854	.....	.....
2—Real estate	44,916	44,916	.....	5,962,920
3—Grading	6,273,143	6,269,739	.....	.....
5—Bridges, trestles and culverts	2,946,225	2,128,297	.....	2,910,639
6—Ties	3,322,736	1,979,070	.....	2,037,935
7—Rails	4,140,208	2,720,065	.....	3,567,372
8—Frogs and switches	118,244	60,002	.....	116,497
9—Track fastenings and other material	839,795	546,492	.....	691,715
10—Ballast	1,369,320	1,069,129	.....	785,426
11—Track laying and surfacing	1,119,448	1,119,448	$728,761	1,301,787
12—Roadway tools	29,223	17,534	.....	20,160
13—Fencing—Right of way	370,193	196,113	.....	289,356
14—Crossings and signs	174,666	111,768	.....	147,573
15—Interlock. and other sig. apparatus	44,750	38,257	.....	38,710
16—Telegraph and telephone lines	166,754	99,816	.....	47,951
17—Station buildings and fixtures	1,130,774	812,318	.....	743,385
18—General office buildings and fixtures	17,359	12,331	.....	18,479
19—Shops, engine houses and turntables	429,981	330,061	.....	298,473
20—Shop machinery and tools	40,460	28,405	.....	29,077
21—Water stations	330,286	224,849	.....	257,696
22—Fuel stations	177,525	123,989	.....	151,773
24—Storage warehouses	4,100	3,879	.....	5,600
30—Miscel. structures	484,672	309,772	.....	640,114
31—Adaptation and solidification	1,141,497	1,141,497	.....	2,272,451
32—Engineering and superintendence	946,987	946,987	808,860	1,328,462
33—Steam locomotives	1,751,760	1,153,740	.....	1,889,860
35—Passenger cars	790,012	472,948	.....	836,022
36—Freight cars	3,984,311	2,733,920	.....	4,189,569
37—Work and miscellaneous equipment	87,800	59,536	.....	54,649
38—Rent and repairs of equipment	74,884	74,884	56,680	117,843
39—Inspection and purchase of equipment	66,139	44,201	.....	.....
40—Transportation of men and material, miscel.	313,720	313,720	237,455	3,838,710
41—Stores and supplies for Nebraska	527,600	527,600	.....	396,604
42—General expenditures —Contingencies	.....	.....	.....	6,428,101
(a) Mkt. val. land only	4,168,941	4,168,941	3,239,942	.....
(b) Inc. acq. and sev. right of way	4,416,264	4,416,264	3,487,753	.....
Grand totals	.....	.....	.....	$48,452,662
(a) Mkt. val. land only	$39,995,291	$32,451,086	$30,898,804	.....
(b) Inc. acq. and sev. right of way	42,286,606	34,742,401	33,190,607	.....
Per mile of roadway	.....	.....	.....	45,228.76
(a) Per mile of roadway	37,334	30,292	28,843	.....
(b) Per mile of roadway	39,473	32,431	30,982	.....
Per mile of track	.....	.....	.....	38,332.20
(a) Per mile of track	31,641	25,673	24,445	.....
(b) Per mile of track	33,454	27,486	26,258	.....

Chicago, Burlington & Quincy

Miles of roadway, 2,850 Miles of track, 3,528.79

Subject	State Commission's valuation: Reproduction cost new	Present value	Present value new formula	Railway company's valuation. Reproduction cost new
1—Right of way and station grounds	.....	.....	.....	$27,478,127
(a) Mkt. val. with acquirement	$9,837,330	$9,837,330	.....	.....
(b) Inc. acq. and severance	16,050,376	16,050,376	.....	.....
2—Real estate	285,589	285,589	.....	336,935
3—Grading	21,366,043	21,366,043	.....	21,444,037
4—Tunnels	118,639	103,639	.....	69,170
5—Bridges, trestles and culverts	7,574,483	4,997,015	.....	9,367,651
6—Ties	10,592,778	6,254,502	.....	10,899,427
7—Rails	12,170,086	8,952,906	.....	12,361,451
8—Frogs and switches	368,283	252,608	.....	400,629
9—Track fastenings and other material	2,678,305	1,947,975	.....	2,453,516
10—Ballast	4,657,953	4,159,160	.....	7,670,220
11—Track laying and surfacing	3,247,233	3,247,233	$2,297,093	5,731,569
12—Roadway tools	128,292	76,975	.....	83,637
13—Fencing—Right of way	822,580	558,781	.....	969,564
14—Crossings and signs	684,533	519,124	.....	750,126
15—Interlock. and other signal apparatus	242,799	210,230	.....	249,506
16—Telegraph and telephone lines	967,033	570,335	.....	866,879
17—Station buildings and fixtures	2,918,994	2,207,699	.....	2,044,077
18—General office buildings and fixtures	211,185	168,948	.....	145,264
19—Shops, engine houses and turntables	2,500,904	1,991,711	.....	1,936,168
20—Shop machinery and tools	918,616	655,709	.....	827,217
21—Water stations	1,158,490	874,909	.....	1,038,055
22—Fuel stations	434,357	313,458	.....	287,656
23—Grain elevators	10,653	8,629	.....	10,000
28—Electric power transmission	.....	.....	.....	6,555
30—Miscel, structures	993,800	684,975	.....	1,568,684
31—Adaptation and solidification	3,808,886	3,808,886	.....	7,412,048
32—Engineering and superintendence	2,922,683	2,922,683	2,579,677	4,156,760
33—Steam locomotives	4,833,753	3,168,980	.....	5,350,358
35—Passenger cars	2,353,394	1,385,613	.....	2,465,713
36—Freight cars	9,206,643	6,341.293	.....	9,821,962
37—Work and miscellaneous equipment	872,109	583,513	.....	923,615
38—Rent and repairs of equipment	293,037	293,037	235,719	1,046,491
39—Inspection and purchase of equipment	172,659	114,794	.....	177,649
40—Transportation of men and material, miscl.	1,208,400	1,208,400	972,037	1,781,221
41—Stores and supplies for Nebraska	2,470,815	2,470,815	.....	2,470,815
42—General expenditures —Contingencies	.....	.....	.....	90,964,612
(a) Mkt. val. land only	15,698,996	15,698,996	12,635,459	.....
(b) Inc. acq. and sev. right of way	16,606,101	16,606,101	13,544,181	.....
Grand totals	.....	.....	.....	$235,567,364
(a) Mkt.val.land only	$128,730,333	$108,242,493	$103,592,129	.....
(b) Inc. acq. and sev. right of way	135,850,484	115,362,644	110,713,897	.....
Per mile of roadway	.....	.....	.....	82,655
(a) Per mile of roadway	45,169	37,980	36,348	.....
(b) Per mile of roadway	47,667	40,478	38,847	.....
Per mile of track	.....	.....	.....	66,756
(a) Per mile of track	36,480	30,674	29,356	.....
(b) Per mile of track	38,498	32,692	31,374	.....

Chicago, St. Paul, Minneapolis & Omaha

Miles of roadway, 306.105 Miles of track, 370.007

Subject	State Commission's valuation: Reproduction cost new	Present value	Present value new formula	Railway company's valuation. Reproduction cost new
1—Right of way and station grounds	.....	.....	.....	$746,986
(a) Mkt. val. with acquirement	$1,256,693	$1,256,693	.....	.....
(b) Inc. acq. and severance	2,144,044	2,144,044	.....	.....
2—Real estate	.....	.....	.....	1,344,174
3—Grading	1,561,931	1,561,931	.....	1,532,544
5—Bridges, trestles and culverts	720,328	481,056	.....	632,234
6—Ties	963,995	541,062	.....	749,947
7—Rails	1,238,127	891,357	.....	1,137,916
8—Frogs and switches	46,037	23,671	.....	39,507
9—Track fastenings and other material	225,135	153,922	.....	205.870
10—Ballast	249,301	222,372	.....	272,162
11—Track laying and surfacing	317,817	317,817	$213,795	216,195
12—Roadway tools	10,624	6,390	.....	5,032
13—Fencing—Right of way	123,394	96,985	.....	94,984
14—Crossings and signs	33,801	19,547	.....	9,498

Subject	State Commission's valuation: Reproduction cost new	Present value	Present value new formula	Railway company's valuation. Reproduction cost new
15—Interlock. and other signal apparatus...	2,445	1,636	.....	1,432
16—Tel. and tel. lines....	32,044	15,191	.....	1
17—Station buildings and fixtures	228,475	155,123	.....	188,636
19—Shops, engine houses and turntables	77,660	69,746	.....	32,018
20—Shop mach. and tools.	8,090	4,069	.....	7,770
21—Water stations	55,156	40,472	.....	53,952
22—Fuel stations	16,475	9,812	.....	8,551
28—Electric power trans..	.....	.....	.....	700
30—Miscel. structures ...	59,441	41,235	.....	64,844
31—Adaptation and solidification of roadway	297,938	297,938	.....	306,509
32—Engineering and superintendence	251,732	251,732	215,785	330,523
33—Steam locomotives...	452,023	254,189	.....	489,774
35—Passenger cars	187,849	118,826	.....	162,377
36—Freight cars	706,267	422,775	.....	710,233
37—Work and miscellaneous equipment	45,351	23,116	.....	57,019
38—Rent and repairs of equipment	30,088	30,088	22,927	.....
39—Inspection and purchase of equipment	13,915	8,189	.....	.....
40—Transportation of men and material, miscl.	128,200	128,200	97,688	322,158
41—Stores and supplies for Nebraska	180,542	180,542	.....	180,542
42—General expenditures —Contingencies ...	.....	.....	.....	909,488
(a) Mkt. val. land only	1,056,827	1,056,827	831,797	.....
(b) Inc. acq. and sev. right of way..	1,159,760	1,159,760	934,892	.....
Grand totals	.....	.....	.....	$10,813,576
(a) Mkt. val. land only.	$10,577,701	$8,682,509	$8,279,837	.....
(b) Inc. acq. and sev. right of way..	11,567,985	9,672,793	9,270,283	.....
Per mile of roadway	.....	.....	.....	35,326.36
(a) Per mile of roadway	34,555.79	28,364.48	27,049.01	.....
(b) Per mile of roadway	37,790.91	31,599.59	30,284.65	.....
Per mile of track	.....	.....	.....	29,225.33
(a) Per mile of track	28,587.84	23,465.80	22,377.51	.....
(b) Per mile of track	31,264.23	26,142.19	25,054.34	.....

DEPARTMENT'S REPORT OF ENTIRE RAILROAD PROPERTY IN NEBRASKA.

Miles of roadway, 6,139.708 Miles of track, 8,038.846

Subject	Reproduction cost new	Present value	Present value new formula
1—Right of way and station grounds—			
(a) Mkt. val. with acquirement..	$27,567,730	$27,567,730	.....
(b) Inc. acq. and severance.....	43,744,229	43,744,229	.....
2—Real estate	3,250,813	3,250,813	.....
3—Grading	41,830,886	41,827,482	.....
4—Tunnels	118,639	103,639	.....
5—Bridges, trestles and culverts....	20,426,192	14,384,285	.....
6—Ties	23,303,501	14,430,868	.....
7—Rails	27,863,050	20,677,321	.....
8—Frogs and switches.....	983,342	631,534	.....
9—Track fastenings and other material	6,255,867	4,601,579	.....
10—Ballast	18,507,563	16,502,865	.....
11—Track laying and surfacing.....	7,342,637	7,342,637	$5,297,114
12—Roadway tools	246,474	147,942	.....
13—Fencing—Right of way.....	1,835,581	1,162,390	.....
14—Crossings and signs.....	2,226,325	1,656,449	.....
15—Interlocking and other signal apparatus	1,236,502	922,280	.....
16—Telegraph and telephone lines...	1,614,477	924,898	.....
17—Station buildings and fixtures...	6,399,606	4,617,125	.....
18—General office buildings and fixtures	1,271,141	1,136,975	.....
19—Shops, engine houses and turntables	6,413,223	5,058,640	.....
20—Shop machinery and tools.....	2,272,247	1,622,142	.....
21—Water stations	2,228,592	1,647,261	.....
22—Fuel stations	881,812	604,658	.....
23—Grain elevators	198,644	170,113	.....
24—Storage warehouses	4,100	3,879	.....
30—Miscellaneous structures	2,470,772	1,686,716	.....
31—Adaptation and solidification.....	7,646,107	7,646,107	.....
32—Engineering and superintendence.	6,878,126	6,878,126	6,048,614
33—Steam locomotives	12,380,742	8,123,671	.....
35—Passenger cars	5,812,407	3,700,945	.....
36—Freight cars	21,548,783	14,774,871	.....
37—Work and misc. equip.....	2,375,566	1,702,097	.....
38—Rent and repairs of equipment.	623,980	623,980	498,189
39—Inspection and purchase of equipment	421,172	283,014	.....
40—Transportation of men and material (miscellaneous)	2,576,801	2,576,801	2,056,430
41—Stores and supplies for Nebraska	6,700,822	6,700,822	.....
42—General expenditures—Contingencies—			
(a) Mkt. val. land only.....	35,149,451	35,149,451	28,607,699
(b) Inc. acq. and sev. right of way	37,300,099	37,300,099	30,766,862
Grand total—			
(a) Mkt. val. land only.....	$308,863,673	$260,842,106	$250,780,157
(b) Inc. acq. and sev. right of way	327,190,820	279,169,253	269,115,819
(a) Per mile of roadway.....	50,306	42,484	40,846
(b) Per mile of roadway.....	53,291	45,469	43,832
(a) Per mile of track.....	38,421	32,448	31,196
(b) Per mile of track.....	40,701	34,728	33,477

The above does not include supplemental report, covering so-called abandoned lines or advance construction questioned.

FEDERAL WORKMEN'S COMPENSATION BILL*

BY FRANK V. WHITING

General Claims Attorney, New York Central Lines

While it is of vital importance to employees of the railroads of this country to have a compensation law with a schedule drafted upon humane grounds, and one that will provide fairly liberal payments in case of injury or death, it is equally necessary to railway interests generally, and especially investors, that the aggregate cost shall be reasonable and that excessive and exorbitant payments in individual cases be eliminated.

The bill before Congress as it now stands is so arranged that in instances where men earn from $100 to $300 per month, the compensation for permanent total disability may range from $20,000 to $60,000, and for death from $7,000 to $32,000.

Under present conditions, damages are paid to employees injured through the negligent acts of the carrier or of its employees, and inasmuch as a large percentage of accidents on railways occur without negligence on the part of anyone other than the injured man, or are unavoidable, it is apparent that a comparatively small percentage have an enforceable right of action. Under the compensation law it is proposed to pay whether the employee is at fault or not, i. e., 100 per cent. of injuries must be compensated. A proposition such as the one under consideration, the adoption of which in fact will cause to be paid to all employees, regardless of fault, amounts in excess of what can now be recovered in cases of liability under the Federal Employers' Liability Act, seems extremely unreasonable.

It is obvious that the ultimate cost of compensation for injury or death depends upon the limitations fixed in either compensation, wages or time. Attention is directed to the fact that the federal act as recommended by the Federal Accident Compensation Commission was constructed with all of these limitations as a basis. This bill was carefully drawn and each part of the schedule so correlated to the whole as to be interdependent, so that a change in the limitation of compensation or wages would necessarily require a reduction in the various periods over which payments were to be made.

Originally, there was a limitation, first, of $100 per month in wages; second, in compensation of 50 per cent. of the wages; third, in certain classes of injury and in all death cases varying limits in time. The limit in wages and monthly compensation produced a limit in money of $50 per month, or $600 per annum. Thus the aggregate payments were, in fact, limited to certain amounts, e. g., with the time limit of eight years in death cases the maximum amount was $4,800. It is obvious that the periods of time over which payments were to be made for certain permanent partial disabilities like those of the loss of a limb or an eye, as well as the eight year period in death cases, were fixed with these restrictions in mind.

In the pending bill there is no maximum limitation in wages, with the result that 50 per cent. of the wages, regardless of what they amount to, must be paid in all injury cases.

Inasmuch as train and enginemen's wages run from $100 to $300 per month, it is apparent that this means an increase in compensation in some instances of 200 per cent., requiring a payment of $1,800 per annum, and this amount might be far exceeded in case of the injury or death of an officer. The limit in time in death cases has been removed as to children, and the males are to be paid until 16 and the females until 20 years of age. With compensation for death at $1,800 per annum and beneficiaries entitled to 50 per cent. of their wages, the aggregate for eight years only would be $14,400.

The two important changes in the bill, then, are the removal of the limitation in wages and the extension of the

*Known as Senate Bill No. 959; H. R. Bill No. 6534.

time in the death cases in payments to children. The removal of the former further enhanced the payments in cases of death. Examples of aggregate amounts of compensation in some death cases follow:

Occupation	Monthly wages	Dependents and ages	Amount
Pass. engr...	$300	Widow and four girls, 5, 3, and twins 1 year	$32,760
Pass. engr...	262	Widow, boy 3, girl 7, and girl 1 day.....	25,152
Pass. engr...	262	Widow, girl 15, boy 13.....	11,632
Frt. engr....	185	Widow, boy 9, girl 6.....	12,210
Pass. engr...	262	Widow only	10,060
Frt. engr....	185	Widow only	7,104
Frt. engr....	185	Widow, girl 10.....	9,990
Frt. brakeman	100	Widow, girls 18, 15 and 5, and boys 13 and 2	7,620

Examples of aggregate amounts of compensation in some injury cases are also shown below:

Occupation	Monthly wages	Age	Permanent total disability	Permanent partial disability	
				Loss: Arm	Leg
Passenger engineer	$300	30	$63,594.00	$10,800	$9,900
Passenger engineer	262	30	55,538.76	9,432	8,646
Passenger conductor	242	30	51,299.16	8,712	7,986
Passenger engineer	191	30	40,488.18	6,876	6,303
Freight brakeman	100	30	21,198.00	3,600	3,300

There are some twenty-two compensation laws in force in various states of the Union, and in none can be found such radical provisions as proposed under the federal act. In the majority of the states the compensation for injury and death is limited to a maximum of $10 per week. In a few the limit is $12, and others $15.

In the majority of the states the limits in time for a permanent partial disability, such as the loss of a limb or an eye, are much lower than those proposed, being fixed from a minimum of 50 weeks to a maximum of 300 weeks, whereas in other states payment is made in part for impaired earning power for a limited period.

In nearly all of the states payment for permanent total disability is limited to from 300 to 500 weeks, or in an aggregate amount, for example, in the states of Rhode Island, Nevada, New Hampshire, New Jersey, Kansas, Massachusetts, Michigan, Minnesota, Nebraska, Connecticut, Illinois and Iowa, there is not only a limit in the compensation per week, but, with the exceptions of Nebraska and Illinois, a limit in time, and in some instances in money, to be paid for total disability. In Nebraska 50 per cent. of the wages is paid for 300 weeks and afterwards 40 per cent., and in Illinois a small pension after the payment of $3,500. All but one of these states have a rate of 50 per cent. of the wages and none pay in excess of $60 per month compensation.

In the Province of Quebec, while 50 per cent. of the wages is paid, payments cease when the aggregate amount reaches $2,000. In the states of Rhode Island, Nevada, New Hampshire, Maryland, Minnesota, Nebraska, Arizona, Connecticut, New Jersey, Kansas, Massachusetts, Michigan, Illinois, Iowa, Texas, Wisconsin, California, Ohio and the Province of Quebec the maximum payments for death range from $2,000 to $5,400. In most of the states there is a limitation in amount per week and also in time, making the amount payable in many death cases much less than the maximum amount fixed.

Careful consideration should be given this subject to the end that the aggregate cost be kept within reasonable bounds and that extraordinarily large payments in individual cases be avoided. To accomplish this, reasonable limitations in wages or compensation and time must be provided.

A limitation in wages of $100, or of $50 per month in compensation, as fixed in the bill recommended by the Federal Commission, would provide liberal and fair compensation in all cases.

In the event it shall be determined not to place a limit in wages or compensation, there should be a material reduction in the periods over which payments are to be made for permanent partial and permanent total disabilities and a time limit applicable to all beneficiaries in death cases.

In conclusion, it must not be forgotten that a compensation bill is a regulation of commerce and must, as such, if it is to withstand the scrutiny of the courts, be reasonable in every detail of the schedule.

COMMISSION'S INVESTIGATION OF PRIVATE CAR LINES

The Interstate Commerce Commission's hearing in its investigation of private car lines, which was begun at Chicago on January 21, as reported in last week's issue, was continued on January 26, before Examiner Settle, and continued throughout the week.

The first witness on Monday was C. A. King, freight traffic manager, Chicago & Alton, who was examined regarding the history of icing charges. The present rate in the central west is $2.50 per ton for ice, including salt and labor. In 1912-13 a large number of western roads which had formerly charged 40 cents per 100 lb. for salt used in refrigerating cars of packing-house products, filed tariffs including the salt in the $2.50 per ton charge. In 1913 the Alton had a tariff for a time including a charge of 40 cents for the salt, but this was later withdrawn He was also questioned at length on a report filed by the road showing that its icing station at Roodhouse had been operated at a loss during 1911, 1912 and 1913. Mr. King was also asked about a contract entered into several years ago by which a large number of packers agreed to give the Alton a certain percentage of their traffic eastbound from Kansas City on condition that the road maintained the rate of 18 cents per 100 lb. Kansas City to Chicago. The contract still has several years to run. He agreed to file a copy, but thought it had been filed with the commission at the time it was entered into.

C. M. Secrist, vice-president and general manager, Pacific Fruit Express, said the company was organized in 1906, and its stock was owned equally by the Union Pacific and Southern Pacific. The company owns 1,300 refrigerator cars used almost entirely in the fruit and vegetable traffic, which were built by the company three or four years ago. The Southern Pacific formerly had a contract with the Armour Car Lines, but after the fruit business had developed so that the movement was continuous throughout the year the Southern Pacific thought it best to own its own equipment. The Pacific Fruit Express has brought about great improvements in refrigerator cars and believes its equipment is the best that can be built, the cars costing about $1,500 each. The Pacific Fruit Express operates its own icing stations and makes a stated refrigeration charge on fruits and vegetables eastbound, while westbound a stated refrigeration charge is made in some cases, and in others a charge of $2.50 per ton is made for ice. The charge is the same on the fruit traffic as on the meat traffic, except that an extra charge is made for salt. The car line generally produces its own ice, whether manufactured or natural, and aims to make some profit on refrigeration as well as on the operation of the cars. For the year 1912 the profit on refrigeration was $680,153. The fruit movement was rather heavy that year, and the profit for 1913 would be less. Since 1908 the company has paid dividends of 5 per cent. about half the time and 10 per cent. about half the time. It has no bonds. The depreciation charge is 8 per cent. The total profit in 1912 was about $1,500,000, derived about equally from operation of cars and from refrigeration. The total investment is about $17,000,000. The repair cost is about 17.4 cents per 100 car miles, which is low because the equipment is new. The repair costs will increase each year. Cars are probably fitted for 10 or 12 years' service. All rates made by the car lines are stated refrigeration charges. The rates per ton are dictated by the railroads, who pay for ice furnished them by the Pacific Fruit Express at the tariff rate. The refrigeration charge is based on the cost of service, which he thought amounted to more than $2.50 per ton. The American Express Company is charged $5 per ton for small quantities. The cars are loaded in return movement with any kind of clean freight.

In reply to questions by Attorney Boyle, he expressed the opinion that a railroad with an organization like the Pacific Fruit Express could operate more economically than an individual or private concern. Regarding the cost of ice, he said, it varied greatly at different points, but that the $2.50 rate has been

greatly applied for several years. On shipments to many points the shipper uses the car and pays $25 for re-icing, whether it be one, two or three times. The company has its own representatives and a complete organization for keeping track of the movement of cars, supervising the ice, etc.

A. W. McLaren, manager transportation department, Morris & Co., was questioned regarding correspondence between himself and officers of the St. Louis & San Francisco, in which the Frisco insisted on loading Morris & Co.'s cars in the return movement, and suggested that the matter be laid before the Interstate Commerce Commisison in this hearing. Mr. McLaren said it was the policy of his company not to object to return loading, provided it did not involve unreasonable delay, but that when cars were sent to Oklahoma City for a load the movement would be greatly delayed if the Frisco loaded them for other points, although in the same general direction. He said the Frisco had criticized them for not having enough cars, but he declared that Morris & Co. would be very glad if the railways would take over the responsibility of furnishing cars. He thought that this was a matter that should be taken care of by the railroads, and that while he did not object to the railroads loading the cars, he thought it was more economical to expedite the empty movement as it required less investment in refrigerator cars. He would express no opinion as to whether mileage or per diem should be paid, but insisted that the rate should be such as to encourage the building of refrigerator cars. There are not enough of them in the country now to take care of the business, he said. He considered that the return of the empty car is taken into consideration by the railways in making the freight rate. He did not believe a general pool of refrigerator cars would be successful, saying there is no man in the world big enough to run a pool of all the refrigerator cars in the country to the satisfaction of the shippers.

W. B. Traynor, manager accounting department, Swift & Company, testified at length concerning the operation and accounting of the company's icing plants. Swift & Co. owns its own repair shops and charges the car lines for repairs on the basis of actual cost, plus a percentage for overhead expense. He said the item of $36,820 for "other earnings" reported by the Swift Live Stock Transportation Company, included the profit of $21,000 on the sale of some cars.

A. C. Mather, president of the Mather Stock Car Company, said his companies design and manufacture cars of all kinds, especially stock cars, and lease them to railways and shippers generally at a monthly rental, as well as on a mileage basis. He had spent a great deal of time and money experimenting with various kinds of special cars which the railways did not become interested in until the experiments were satisfactorily completed. Last year his company made a profit of less than 1¼ per cent. on its investment in live stock cars, and will probably show a loss for this year. Automobile cars were profitable once, but they are not protected by patents, and the railroads have built so many that it is not now profitable for a private car line to own them. The mileage rate on these cars is .6 cent a mile. He prefers to rent these cars to railroads at $9 or $10 a month. He had leased 500 new refrigerator cars to the Central Fruit Despatch at $13.50 per month, and some beef cars to the Cudahy Packing Company at $15 a month. He had much material on hand at the time, and was willing to accept the rates paid, but now believed that allowing for depreciation there would be no profit at those rates. The cost of repairing cars under M. C. B. rules has increased 65 per cent. since 1903. It is difficult to check repair bills rendered by the railways, but he believed they were generally correct. He was questioned in considerable detail regarding the history of live stock equipment. About 30 years ago, he had built a special car for the transportation of live stock, because he thought the prevailing method of handling animals was not humane. He failed to interest the railroad presidents in his plans, but after raising some capital to build them his cars found favor and were gradually adopted by the railroads after he had demonstrated that by proper handling of live stock a saving of 40 pounds per head could be made in shrinkage from Chicago to New York. He believed the commission should consider the demurrage rate as well as the mileage. He had had cases in which cars were held under load for a long time on account of litigation or other causes, and the railroads had collected $1 per day from the consignee while his company received nothing in the way of mileage. He thought the car company should be entitled to one-half the demurrage in such cases.

He hoped the commission would do nothing to discourage the development of railway equipment by outside interests. That, he said, would be a big step backwards, as the greatest improvements are suggested by people outside of the railroad business, as the railway mechanical departments are too busy with routine matters to be able to spend much time on development work. He declined to express an opinion on the question of mileage or per diem, but thought that .6 of a cent was entirely inadequate for live stock cars, saying that unless he could get a better rate of compensation he feared much of his investment would be lost. If the per diem rate is adopted he thought the rate on refrigerator cars should be at least 75 cents a day. He believed that he could repair cars cheaper than railways could perform the same class of work.

J. A. Behrle, chief of the tariff bureau of the Chicago & Alton, gave a history of the tariffs on icing and refrigeration charges. On April 1, 1912, the western trunk lines generally absorbed the cost of salt in their icing charge. In the Central Freight Association territory salt had been furnished free for many years.

R. R. Hawk, secretary of the Cold Blast Transportation Company and the Lackawanna Live Stock Transportation Company, both controlled by Sulzberger & Sons Co., testified regarding the operation of his company's cars, and expressed the opinion that the railways should pay mileage for the switching movement as well as the road haul.

E. W. Skipworth, traffic manager of Sulzberger & Sons Company, said that at times he felt that his company was charged for more ice than was put in the cars at icing stations operated by other packers, but that it was impossible to prove the case. He had had considerable difficulty in getting cars returned. Sometimes they were loaded and sometimes not. He had some difficulty with the Frisco regarding cars sent to Oklahoma City, because the Frisco insisted on loading them. He did not object at times when cars were plenty, but when cars were needed at Oklahoma City at once he thought the Frisco should move them as expeditiously as possible.

J. A. McNaughton, traffic manager of the Cudahy Packing Company, said his company purchased its cars because the railways would not furnish proper or sufficient equipment. His company was not in the business for the profit to be made from refrigerator cars, but does claim the right to earn a reasonable return on the capital employed. Its net return in 1912 was about four per cent. Its own cars handled only about 70 per cent of its shipments. Some cars are leased from the Mather Car Company at $15 a month and his company receives the mileage. He did not believe this would exceed the rental. He had some complaint to make regarding the repairing of cars by the railways, saying they do not perform this work as thoroughly as the owner would, because of lack of facilities and because the railway employees are not especially familiar with refrigerator cars. He thought the M. C. B. rules, which are predicated on a reciprocal relation between the railways, do not in all instances work out fairly when applied to private car lines.

He was questioned at some length regarding complaints his company had made regarding icing stations operated by other packers. He thought it contrary to public policy that a competitive shipper should be engaged in supplying icing service. Icing service performed by the railways is generally satisfactory, but he believed there was an opportunity for discrimination in stations operated by the packers. In 1908 he applied to the railways east of Chicago for a rate of $1.50

per ton on ice, which he believed to be about the cost of the service. His request was not granted, and he intimated that the principal reason was that the Cudahy company was alone in asking for this rate, from which he inferred that the other packers were really paying about that price.

The Cudahy Packing Company would be glad if the railways would take over its equipment on any fair basis and supply it with the cars needed for its traffic. The present mileage rate, he thought, did not give a fair return, and a rate of one cent per mile all over the United States would not give a return of over six per cent. He thought a plan of pooling all special equipment would result in less efficiency because the pool would have to be so big as to be unwieldy, and moreover, would eliminate competition, while if the movement of refrigerator cars should deteriorate to the average of railway car movement, 25 miles a day, about four times as many cars would be required as at present. He thought the mileage figures, as computed by the commission, were not fairly representative, because a basis of 365 days a year was used. He thought from 115 to 125 miles per day would be the average traveled while in actual service. Cars move from the Missouri river to the Atlantic seaboard in five to seven days, and the return trip takes about three times as long. He did not regard that as expedited service.

H. P. McCue, general manager transportation, Pittsburgh Coal Company, and general superintendent of the Montour Railroad, which is controlled by the coal company, said the road owns 3,700 cars which were formerly owned by the Pittsburgh Coal Car Company. At that time the cars were on a mileage basis at .6 cent per mile. They are now on the per diem basis, and the cars make a better showing than they did on the mileage basis.

H. B. Kooser, general manager American Refrigerator Transit Company, testified regarding the operation of refrigerator service over the Gould lines. The International & Great Northern and Denver & Rio Grande pay a per diem rate of 60 cents a day and a commission. The other roads pay one per cent. a mile and 12½ per cent. of the revenue on all traffic carried in A. R. T. cars. The Denver & Rio Grande pays mileage during August, September and October, the months of the heavy fruit traffic, and pays per diem the rest of the year. This is because the road orders cars for the fruit traffic in June and holds them awaiting loading for some time. The A. R. T. owns all its cars, except 393 leased from the Wabash, Iron Mountain and Missouri Pacific at $5 a month. It has 5,700 cars, of which 4,500 are equipped for handling beef as well as fruits and vegetables. One thousand cars built in 1911 cost $1,137, and 2,500 cars built recently cost $1,237.50. Cars without beef racks cost $32.40 less. Sixty-seven per cent. of the company's mileage is under load. It does not object to the return loading of clean freight, providing no unreasonable delay is involved, although when cars are short it does not allow its cars to be loaded in return movement. He thought the railroads should pay mileage on the return movement.

The company repairs its own cars because of the belief that the average railroad repair man does not understand the proper handling of refrigerator cars. He believed the M. C. B. rules to be fair now, but did not believe the increase of 10 per cent. in the labor and material charge which was in effect from September, 1912, to October, 1913, was fair to the car lines. The average life of a refrigerator car he placed at about ten years. The American Refrigerator Transit Company does not report to the Interstate Commerce Commission nor consider itself a common carrier. It furnishes ice for less than carload shipments free. This is compensated for in the 12½ per cent. commission. The commissions received in one year amounted to $296,800. Many other roads than the Gould lines pay this commission, which represents a great deal of development and solicitation work which the railways would otherwise have to pay for. His cars made less mileage than the packers' cars because the latter have a constant supply of traffic, while the A. R. T. has to develop the traffic. He accounted for the high repair cost for the A. R. T. cars by the fact that a large number of them have recently been practically rebuilt. The company showed an average return on its investment of 2½ per cent. and has paid no dividends in recent years.

He did not believe a general pool of refrigerator cars would be successful because of the large amount of equipment it would require and of the great difficulty in properly distributing the cars. The American Refrigerator Transit can handle its business more economically than the individual roads in the Gould system could if they tried to handle the same traffic, but he thought there was a limit to the extent of the pool that could be successfully operated. His company could earn a greater mileage per car with a less number of cars, but it could not properly take care of the business.

W. H. Canniff, president New York, Chicago & St. Louis, was questioned regarding the history of contracts between his road and various dairy despatch lines. For details he referred to B. E. Morgan, general freight agent of the road, who said that a contract was made in 1907 with the Overland Refrigerator Despatch for the solicitation and development of dairy traffic, for which the road paid the despatch line $1,500 a month. This was supposed to represent about 10 per cent. of the gross revenues, less the salaries paid directly by the railroad. In 1908 the Atlantic Seaboard Despatch was organized and took over the business in connection with the Nickel Plate fast freight line. He also explained the relations of various other subsidiary despatch lines to the Nickel Plate. At the present time the Nickel Plate and the Delaware, Lackawanna & Western have leased 200 cars to the Atlantic Seaboard Despatch at $15 a month per car, and the new line will be known as the Nickel Plate-Lackawanna Dairy Line for the handling of dairy traffic. Salaries and expenses will be paid directly by the railroads. He thought the dairy traffic could be more satisfactorily handled through a separate organization that could give special attention to the business.

C. R. Hillyer, representing the Atlantic Fruit Distributing Company, presented a number of affidavits and letters to show the poor condition of refrigerator cars furnished by the Armour Car Lines.

J. W. Archibald, president of the Dairy Shippers' Despatch, said his company owns 300 refrigerator cars used for dairy freight, and a force of solicitors. Formerly the railways paid commissions of 12½ per cent., or enough added to the mileage rates to make 7 per cent. on the investment and 5 per cent. for depreciation. The commission was about equal to the 7 per cent. Now it receives only three-fourths of a cent a mile. The company has a tentative arrangement with the Erie and has tried for a year and a half to get the approval of the commerce commission for a contract providing for a commission. None of the stockholders of the company are in any way interested in the produce and the commission would simply represent the compensation paid by the road for saving it the expense of owning the equipment and of solicitation. The individual lines, he said, cannot afford to hire solicitors to properly develop this class of business, because the haul would be short for the individual lines, so they combine to hire a despatch line to represent several roads. The Dairy Shippers' Despatch, he thought, was an economic necessity and a public benefactor. It sends men into the producing territory, develops traffic by teaching the producers improved methods and finds markets for them. This business had been practically abandoned when the despatch line took it up and it has been steadily developed for several years. It would be abandoned again if left to the individual roads.

W. S. Logan, manager of the Dairy Shippers' Despatch, said he was also manager of the Dairy Shippers' Despatch Fast Freight Line, which operates the service of the Dairy

Shippers' Despatch in connection with the Erie, Chicago, Indiana & Southern, Clover Leaf, Delaware & Hudson and Boston & Maine, and maintains a soliciting force. For the year ending August 31, 1913, the company showed a loss of about $20,000, or about equal to the depreciation at 6¼ per cent. on an investment of $300,000. When commissions were paid the despatch line had shown a profit. The mileage earnings are about 40 cents a day; under a per diem system he thought cars would be returned more promptly.

J. K. Ingalls, president of the Western Heater Despatch, said his company furnishes refrigerator cars to railroads and shippers, in the winter for potatoes and in the summer for beer shipments. Most of the cars are rented to shippers at $15 a month. The railroads pay mileage, except that the Elgin, Joliet & Eastern and the Chicago & North Western pay 45 cents a day. His company does the repairing and does no soliciting. The cars are almost new, and he thought at first they were on a profitable basis, but with the increasing cost of repairs he thought the mileage rates were too low to take care of maintenance, operation, depreciation and a return on the investment.

Fred Horton, auditor of the Chicago Refrigerator Despatch, said that his company had owned 312 refrigerator cars, and received both mileage and commissions on dairy traffic, but after the commissions had stopped the cars were sold, because there was no profit in the business and the company is now engaged only in repairing cars.

R. Fitzgerald, president of the company, and also of the Chicago Junction Railway, declared that there was no profit in operating a private car line, but that it was necessary for some shippers to supply their own cars in order to be sure of service. The Chicago Junction gets its revenue from trackage charges, but allows private car lines to store idle cars on its tracks free as an accommodation. He did not believe it would be practicable for his company to own enough cars to take care of the business of the Chicago packers, saying it would be necessary for another company to own enough cars to supply the packing houses at the Missouri river and other places, and take three or four times as much equipment all together.

C. J. Hyland, assistant treasurer of the Chicago, New York & Boston Refrigerator Company, said his company owns 823 refrigerator cars for the transportation of dairy products and receives commissions from several roads. The commissions are expected to pay the soliciting expense. Attorney Boyle, for the commission, analyzed the expenses in detail, apparently for the purpose of showing that many items had been charged against the soliciting expense which should have been charged to operation. The operation showed a profit.

James A. Donovan, manager of the Lemac Carriers Company, said his company owns 200 special cars for the transportation of live poultry. Some of the stock is owned by eastern poultry dealers. The company receives mileage from the railways at the rate of three-fourths of a cent on both loaded and empty cars, except that the Southern Pacific does not pay on empty cars. The shippers also pay a charge which is usually collected through the railways. No commissions are received. The company does not report to the Interstate Commerce Commission.

Frank X. Mudd, general manager of the Live Poultry Transportation Company, said his company owns 777 cars for the transportation of live poultry from the points of production to the principal markets. The company was organized in 1888 to provide a better means of transporting live fowls than the old way of shipping them in coops. There are only about 1,000 cars of this kind in the country, and he said that no railroad would have sufficient demand for them to justify owning its own equipment and giving the business the requisite special attention. The cars built in 1912 cost from $1,660 to $1,690, and they deteriorate rapidly, only lasting from 8½ to 9½ years. The company receives mileage from the roads and a rental charge from shippers, which is collected by the roads. The tariff of these charges was sent to the Interstate Commerce Commission eight years ago and there has been no change since. The company does not receive commissions and makes no reports to the Interstate Commerce Commission. He keeps in close touch with the movement of the cars and with the requirements of the traffic so as to send the cars to places where they are needed. The business is very irregular and the cars stand idle much of the time, making from three to eight trips a year. He acts exactly, he said, as if we were operating a pool for all of the roads. The mileage received does not pay operating expenses, but only a little more than the amount of the depreciation. The company is going to have some steel cars built in the hope that depreciation will be less. Formerly a 10 per cent. shrinkage in the weight of poultry in transit was not remarkable. Under the present method this is saved. The cars contain 128 compartments, each holding about 40 fowl, and each provided with food and water. The cars are accompanied by a caretaker. None of the company's employees has used passes for the past eight years.

Additional testimony regarding the operation of dairy lines was given by A. D. Ranstead, president of the Refrigerator Transit Company, and G. B. Albright, general manager of the Shippers' Refrigerator Car Company. This company no longer receives commisisons, but is paid $800 a month by the American Refrigerator Transit Company for solicitation. It would not be profitable, he said, for the company to operate on the mileage basis alone, and it is more economical for the railroads to employ specialists to solicit and develop the dairy traffic than to depend on their regular organization.

A. A. Jennings, dairy traffic agent of the Union Line and the Pennsylvania Lines, described the handling of dairy traffic. The Pennsylvania System has between 4,000 and 5,000 refrigerator cars, which may be loaded both ways, and he considered that the business was being satisfactorily handled. He said he had more competition from the New York Central Lines than from any private car line.

Other witnesses heard were W. C. Wildey, manager of the Fruit Growers' Union, an association of Michigan grape growers, who objected because the Michigan Central and Pere Marquette use Armour cars. He said the shippers are charged too much for ice and thought the railways should pool their refrigerator equipment so that shippers could load a car to any point desired.

F. J. Reichmann, president and general manager of Street's Stable Car Line, said that private investment in livestock cars had been of great benefit to the railways in the early days, but that under constantly increasing expenses, accompanied by a decrease in the livestock movement the business was no longer profitable. For the past 10 years his company, he said, has earned but 3.68 per cent. on the investment, and for its entire history the average return after allowing for depreciation at 5 per cent. has been 3.71 per cent.

The hearing was adjourned on Monday to be continued after a day or two in Chicago, after which there will be a hearing in Jacksonville, Fla.

LARGE BRIDGE TO BE CONSTRUCTED IN GERMANY.—It is reported that construction will soon be begun of a railway bridge connecting Rugen, an island in the Baltic sea, almost due north of Berlin with the mainland of Germany. This bridge when completed will be one of the longest, if not the longest in the world, exceeding even that over the Hwang ho, which is 10,740 ft. long. The cost of this great engineering work is not expected to amount to much more than $5,000,000, which will be less than a third of the cost of the Forth bridge. The structure will probably include a track for pedestrians, although none for road traffic, and when completed it will substantially shorten the journey between Berlin and Hamburg on the one hand, and Stockholm and Christiania on the other.

General News Department

Forty-five suits against eleven railroads were filed in the federal court at Chicago on January 31, charging violations of the laws regulating the transportation of livestock.

Passengers on a train of the Baltimore & Ohio were robbed on the morning of January 28, about 2 o'clock, near Zanesville, Ohio, six robbers having boarded the train at Cambridge. One man was soon arrested.

Thirty-six station agents on the Southern Pacific, Pacific System, have been awarded silver medals for having "premium stations." The officers of the road making the award examined 670 stations. Medals are awarded annually.

R. C. Richards, chairman of the central safety committee of the Chicago & North Western, has been appointed chairman of a committee of the City Club of Chicago that proposes to conduct a campaign against trespassing on railway property.

At the closing session of the American Wood Preservers' Association at New Orleans on January 22, a resolution was adopted that the association favors such an increase in freight rates as will enable the railroads to carry out their plans for improved service.

Congress has passed a bill, introduced by Senator Kenyon of Iowa, to amend the judicial code so that state courts will retain jurisdiction of damage suits against carriers where the amount in controversy does not exceed $3,000. This bill became a law January 20.

Telegraph operators on the Lake Shore & Michigan Southern and Cleveland, Cincinnati, Chicago & St. Louis are taking a strike vote because of the refusal of the companies to grant their demands for a 10-hour day in one-man stations and an 8-hour day in 24-hour stations.

The Sunset Central Lines and representatives of the four labor organizations that recently went on strike have jointly requested the services of the federal board of mediation and conciliation to adjust a final point of difference. Of the 67 grievances which brought about the strike, 66 have been adjusted in a series of conferences.

Professors from the Pennsylvania State College are to give lectures to the apprentices in the shops of the Pennsylvania Railroad at Altoona. Lectures will be given twice a week to members of the fourth year class. Apprentices will have the option of joining the lecture class or not; but having once joined, attendance will be compulsory.

Representative Willis of Ohio has introduced in Congress a bill to regulate the installation and the use of weighing scales on all railroads engaged in interstate commerce. By the terms of the bill the Interstate Commerce Commission after January 1, next, would have power to prescribe standards, the standards having first been prepared by the Bureau of Standards.

The late Lord Strathcona, in his will, left $500,000 to Yale University. According to a New York paper the gift is accompanied by a request that the university make special conditions to enable employees and sons of employees of the Great Northern Railroad to enter the university. A large part of the fortune of Lord Strathcona, which was estimated at his death at $25,000,000, was made through his investment in Great Northern stocks.

The legislature of Kentucky has before it a bill to establish a public utilities commission with extensive powers, like those conferred in the laws recently passed in Pennsylvania, Illinois, Idaho and other states. There is a provision that the three commissioners shall have salaries of $2,000 each, a sum which, in the view of some railroad men of the state, insures the appointment of men not competent to handle the large matters which would come before such a commission.

The Chicago city council committee on railway terminals voted on January 29 to postpone further consideration of the anti-smoke ordinance, which applies only to railways, until after a report is received from the Chicago Association of Commerce Committee on Smoke Abatement and Electrification of Railway Terminals, which has been making a comprehensive investigation for about three years. The council committee had voted to recommend the ordinance, but reconsidered it after receiving the protests of the railway employees.

The Pennsylvania Railroad has now on its pension rolls 4,037 employees, of whom 27 are women. During the past 13 years the total number of employees placed on the pension rolls has been 7,800. The payments have aggregated $9,500,500. This includes the lines both east and west of Pittsburgh. The company has issued a circular in which there is a large picture taken at a recent luncheon given to the veterans of the road by the Railroad Young Men's Christian Association of West Philadelphia. At this luncheon there were present 150 retired employees, of whom 48 had been in the service of the company for 48 years or more, and of whom 89 had served in the army during the Civil War.

The annual report of the Board of Hospital Service Managers of the Missouri Pacific-Iron Mountain has just been completed. The financial statement shows an increase in net surplus for the year of $12,163, of which $5,000 has been set aside for the erection of an emergency hospital at Argenta, Ark. During the year the St. Louis and Kansas City hospitals have been equipped with approved electric lighting systems, and at the Kansas City shops an apartment, equipped with proper furnishings and supplies, has been set aside for use in rendering first aid to the injured. A feature of the year's work in the hospital department was the instruction tour over the entire system of a Red Cross hospital car. Competent physicians accompanied the car and at all the principal points on the lines gave lectures and instructions, which included moving picture and X-ray demonstrations.

The Secretary of the Treasury, speaking for the Interstate Commerce Commission, informs Congress that for the year beginning July 1 next, the commission will want the sum of $2,000,000 to pay for the work of valuing the property of the railroads of the country. This sum is about twice the total annual expenditures of the commission, in former years, for all purposes. For the current year, Congress has made a special appropriation of $25,000 to enable the commission to investigate block signalling, etc., and the commission now asks for the same sum for the next fiscal year. Further, the commission wants, for its general work of inspection of cars, engines, etc., and for investigation of accidents, the sum of $180,000 for the next year instead of $150,000 as heretofore estimated.

"Railroad Trainmen," the monthly journal which is the organ of the Brotherhood of Railroad Trainmen, has in its February number an article on the late strike on the Delaware & Hudson which purports to give the defense of the Brotherhoods; but the explanation is not complete. The principal item in the statement of reasons which was published in the newspapers at the time of the strike was that in cases of infractions of the regulations the employees had been encouraged in their disobedience by oral statements from officers, specifically advising or instructing the men to disregard certain rules. This explanation is one feature of the article in the magazine, but it is not definitely stated that it applies to the case of conductor Slade and engineer Lynch, the two men who were dismissed because they hauled a derailed car for a distance of three miles, and whose dismissal was the cause of the strike. Speaking of two other men, Giles and Whitney, whose offences are not named, it is said that their fault was primarily due to the habit, into which the men generally had fallen, of complying with "verbal instructions" given by road foremen of engines and assistant trainmasters to the effect that trainmen might use their own judgment and disregard speed-limit rules. For example, where a notice requires reduced speed

to be maintained over a certain restricted territory, the rule stipulates that the low speed-limit shall be observed until the whole of the train has passed through the territory described; this rule the Brotherhood claims that the men were encouraged to disregard. It is also claimed that men have been given train orders limiting speed to five miles an hour with an accompanying statement that it was expected that the trains would make ten miles an hour. The only pertinent reference to the cases of Slade and Lynch is to the effect that the company had much exaggerated the amount of damage done by the derailed car. The Brotherhood accepts the responsibility for such faults as the annual report of the Interstate Commerce Commission lays at the door of the employees, insofar as the accusation is based on fact, but charges that the Delaware & Hudson must also accept, as intended for its officers, the charge of the commission that American railway operating officers are cognizant of habitual disregard of rules and have not taken proper steps to correct the evil. It is further charged that a certain officer of the D. & H., not named, has called men into the office and when they appeared, he "damned, cursed and intimidated" them.

In Louisiana committees of the Brotherhood of Locomotive Engineers are working to have the legislature pass a law to more effectively prevent animals from straying on to railroad tracks; and a letter has been sent to the headquarters of each railroad company asking for information concerning animals killed, which may be used in promoting the proposed law. Some of the parishes in Louisiana have a local law requiring that dead animals be allowed to remain on the railroad premises a certain length of time, to allow the owner to identify the animal, a disgusting condition which ought to be corrected. In a few parishes, there are local laws which empower police juries to penalize owners who allow animals to run at large. One small road in the northern part of the state reports that during the year 1913 it paid for 585 animals killed on its right of way, the estimated aggregates of these payments being $10,000. In Mississippi last year the railroads paid out more than $300,000 for stock killed. In Louisiana the total, it is believed, was much greater; and a number of locomotive enginemen lost their lives in derailments caused by animals which had lain down to sleep on the track at night.

A Railroad Family

The monthly bulletin of the Chicago & North Western publishes a photograph of a family seven of whose eight male members are in the employ of the North Western on the Peninsula division. The father, Henry T. Brukardt, is a section foreman, four sons are ticket agents, two are telegraph operators, and the other son still attends school. The only daughter of the family married a North Western ticket agent.

Cold Weather Instructions

The Chicago & North Western has issued a bulletin to trainmen and others concerned giving instructions to be observed during cold weather. These include the following:

"Train and enginemen will bear in mind that in all cases speed must be sacrificed for safety. You will not be criticized for a failure to make time or for losing time under bad weather conditions. Bear in mind the great importance of proper observance of signals and proper flagging protection at all times and see that the rules in this respect are obeyed.

"Enginemen will be particular to use good judgment and run carefully, evenly, and safely during fogs, snow storms or stormy weather. Be particularly alert and careful at turn around subpoints and coal and water points. Observe speed restrictions and slow orders, and do not exceed scheduled time during extreme cold weather."

Standard Time by Wireless Telegraph

The United States Naval Radio station at Arlington, opposite Washington (post office, Radio, Va.), sends out standard seventy-fifth meridian time every day, at noon and at 10 p. m.; and the same plan, with slight variations, is carried out at other stations—Key West, New Orleans, North Head, Eureka, San Diego and Mare Island. These time signals are sent primarily for the benefit of ships at sea, but we are informed that a number of jewelers in the eastern and the middle western states are making use of the signals. At this season of the year the time signals sent out from Arlington are received at stations on the Pacific coast. The Arlington station has a direct wire from the naval observatory, across the Potomac river, from which the signals are repeated by a relay which actuates the radio sending instrument. The time signals sent out from the stations on the Pacific coast come from the observatory at the Mare Island navy yard. The signals are sent in the same way that they are sent over telegraph wires, but they are kept up for five minutes, with the customary intermissions, beginning five minutes before the even hour. A small and simple radio installation is adequate to receive these signals.

President Ripley on Railroad Morality

The *Economist*, Chicago, publishes in its issue of January 31, the following letter to the editor from President E. P. Ripley, of the Atchison, Topeka & Santa Fe, in reply to an editorial published in a previous issue:

"In your issue of 20th December appeared an editorial headed 'Your Neighbors,' advocating an organization among railroad men to 'encourage a high morale' in the service. This article was presumably prompted by the disclosures made concerning the things that happened on the St. Louis & San Francisco and the New York, New Haven & Hartford.

"And now in your issue of 10th inst. appears a paragraph commenting on the lack of response to the suggestion of the first article and saying that the 'railroad companies have left it to half-baked legislators . . . to pass criticism on them and have gone about their business unorganized.' And you further say that the 'good ones of the fraternity' have not done their duty in preventing the consummation of grave offenses, et cetera.

"Assuming for just an instant that I am one of the 'good ones' will you be so good as to tell me how my influence could prevail or what I can do or could have done to prevent 'improper practices?' Firstly, I am not in the councils of other roads and if they were contemplating the worst sort of fraud they would hardly be likely to advise me of it; nor can I pry into their affairs without impertinence.

"You say that the wrecking of the New Haven was clearly foreseen by many persons and that it could have been stopped had there been a body of supervisors among the railroads themselves. I doubt that it was foreseen. I did not foresee it, nor do I know how I could have either prevented or have aided to prevent it. Now that it has happened there are plenty of men who will say they foresaw.

"The fact is that each railroad officer has about enough to do to keep his own craft afloat, and the members of a supervisory body for the purpose of watching others would be extremely likely to get into trouble as well as to neglect their own affairs. The interference of such a body would be resented unless based upon facts, and I am wholly at a loss to understand how an investigating body could ascertain the facts as to the plans and inside workings of a board of directors. Moreover, while we are not perfect mortals, I beg to state that we have few rascals among us, and the number grows daily less. It is my opinion that there is no more honorable or high-toned body of men in this country than its railroad officers, and I know them intimately well. We have our conferences and our arguments and differences, and we do not hesitate to point out what we consider the mistakes of our neighbors. But if it seems to me that my contemporary is doing improper, or unethical, or even dishonest, things, about which I cannot talk without insulting him, and about which I cannot talk to his board of directors without producing the evidence, then I say that the people he represents are most interested and should furnish the police. Every wrong-doer knows perfectly well what he is about, and every one interested has the opportunity of knowing what is being done.

"We have all sorts of organizations to combat 'the half-baked legislator,' who is the worst enemy of his country and the more dangerous because of his good intentions; but no organization avails because it is (or at least has been) the most popular thing to lie about the railroads and ride into office on the promise to 'hang their hides on the fence.' There is the same sort of organization among us, and perhaps more than there is in any other walk of life, and as much done to uplift both the individual and the mass, but in no calling that I know of is there

an organization for 'maintaining correct business principles and detecting deflection from same.' All we can do is to furnish individual example and preach good morals and methods. We cannot spy on our neighbors or criticize methods for which there may be excellent reasons which we know nothing about."

Showing Tickets on the Frisco

The St. Louis & San Francisco requires passengers to show tickets before boarding the cars, even at unfenced way stations. In our notice of this practice January 9, page 60, attention was called to the fact that an element of the success of the plan was its looseness—trainmen are allowed discretion in suspending the rule. A reader who cannot believe that this feature is sufficient to make the rule satisfactory to the public writes to express the opinion that the disfavor which the company incurs must offset most of the advantages of it. But the proof of the pudding is in the eating, and to this observation the road replies that there isn't any disfavor:

"The best test of the public's attitude towards this rule can be found along the 850 miles of our River and Cape Division. This division lies in southeast Missouri and northeast Arkansas, where the local business is very heavy; and the people are as hard to please and as prone to find fault with railroads as those in any section of the country.

"This rule has been in effect on that division five years, and it has become just as natural for the people to buy tickets and to convince the trainman, who stands at the coach platform to assist them to board the train, that they have a ticket, as it is for passengers when passing through the gates of any of our big terminal stations to buy tickets and be prepared to show them at the gate.

"If the weather is bad and a man comes to the coach platform with an umbrella in one hand and a grip in the other, or if a woman comes up with a baby in her arms and a grip, all that is required is that the passenger say that he or she has a ticket and to what place.

"There is a definite advantage in a rule that prevents passengers from getting on the wrong train. This has saved us a great deal of trouble. The rule is of further benefit to the traveler in that it very materially reduces the time required for the conductor to take up transportation; he has more time for taking care of his train and his passengers.

"On the division referred to, the stations in many cases are only a mile or two miles apart; and frequently fifteen or twenty passengers will get on at one of these stations going to the next or the second station beyond. If each of these passengers paid a cash fare amounting to an odd number of cents, and each handed the conductor a bill, the absurdity of the cash-fare habit would be apparent to any one. Our trainmen are very strongly in favor of the rule, and I predict that within six months we shall have entirely forgotten that it is anything new on any division."

Mail Pay in Canada

The Grand Trunk and the Canadian Pacific are having a discussion with the government at Ottawa concerning compensation due the roads from the government for the transportation of mails and concerning the proposed arrangements for a parcel post. The situation seems to be very much like that at Washington. A report of the matter in a Montreal paper says:

The companies calculated the indebtedness of the government by millions. The latter, whether Liberal or Conservative, paid little attention. "You owe us something like $6,000,000," said the railways to the government. The latter said, "Forget it." The government wants to make them forget it to the tune of at least $2,000,000. That is to say, instead of giving the railways arrearages on the mails, of, say $4,000,000, and, say $3,000,000 for the parcel post, it offers them in the neighborhood of $2,000,000, forgetting all about the mail arrearages.

"And suppose the railways should refuse the amount offered, which has not yet been brought before the Governor-General-in-Council?" asked a reporter.

"Well, you know," a high railway officer answered, "it is hard to fight the government."

"You would have no recourse?"

"It might be a legal question; but what could you do about it? We have been giving more and more space to the mail matter all the time. This required also more handling; more wages. We have got nothing for it all these years. Wages and salaries have been revised all over; but we have not got one cent of increase for twenty-five years."

The Railway Business Association

The Railway Business Association, a part of whose General Executive Committee are elected and a part appointed, has organized for 1914 with the following official roster:

President—Geo. A. Post, New York.

Treasurer—Chas. A. Moore, New York.

Assistant Treasurer—M. S. Clayton, New York.

Vice-Presidents—A. M. Kittredge, Dayton, O.; W. E. Clow, Chicago; G. W. Simmons, St. Louis; S. P. Bush, Columbus, O.; Alba B. Johnson, Philadelphia; H. G. Prout, Pittsburgh; W. G. Pearce, New York.

Executive Members—G. M. Basford, New York; J. C. Bradley, Buffalo; J. S. Coffin, New York; Walter H. Cottingham, Cleveland; O. H. Cutler, New York; Henry Elliot, East St. Louis; Irving T. Hartz, Chicago; F. T. Heffelfinger, Minneapolis; Robert P. Lamont, Chicago; W. B. Leach, Boston, Mass.; E. B. Leigh, Chicago; W. H. Marshall, New York; William McConway, Pittsburgh; A. H. Mulliken, Chicago; Rudolph Ortmann, Chicago; S. F. Pryor, St. Louis; W. W. Salmon, Rochester, N. Y.; Justus H. Schwacke, Philadelphia; Geo. T. Smith, Jersey City; James S. Stevenson, Detroit; H. H. Westinghouse, New York; W. W. Willits, Chicago.

The Freight Claim Association

The twenty-third annual session of the Freight Claim Association which is to be held at Galveston, Tex., in May was originally set to commence on Wednesday, May 20. It has recently developed that the date previously determined upon conflicts with that of the annual meeting of another association at the same point and at the same hotel. It has been decided, therefore, to hold the session one week earlier. It will be held at the Hotel Galvez, Galveston, Tex., and will commence on Wednesday, May 13.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

Air Brake Association.—F. M. Nellis, 53 State St., Boston, Mass. Next convention, May 5-8, Hotel Pontchartrain, Detroit, Mich.

American Association of Demurrage Officers.—A. G. Thomason, Boston, Mass. Convention, May 19, 1914, St. Louis.

American Association of General Passenger and Ticket Agents.—W. C. Hope, New York.

American Association of Freight Agents.—R. O. Wells, East St. Louis, Ill. Next convention, April 21, Houston, Tex.

American Association of Railroad Superintendents.—E. H. Harman, St. Louis, Mo.; 3d Thursday and Friday in May.

American Electric Railway Association.—E. B. Burritt, 29 W. 39th St., New York.

American Electric Railway Manufacturers' Assoc.—H. G. McConnaughy, 165 Broadway, New York. Meetings with Am. Elec. Ry. Assoc.

American Railway Association.—W. F. Allen, 75 Church St., New York.

American Railway Bridge and Building Association.—C. A. Lichty, C. & N. W., Chicago. Next convention, October 20-22, 1914, Los Angeles, Cal.

American Railway Engineering Association.—E. H. Fritch, 900 S. Michigan Ave., Chicago. Next convention, March 17-20, Chicago.

American Railway Master Mechanics' Association.—J. W. Taylor, Karpen Building, Chicago. June 15-17, Atlantic City, N. J.

American Railway Tool Foremen's Association.—A. R. Davis, Central of Georgia, Macon, Ga. Next convention, July 20-22, Chicago.

American Society for Testing Materials.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.

American Society of Civil Engineers.—C. W. Hunt, 220 West 57th St., New York; 1st and 3d Wed., except June and August, New York.

American Society of Engineering Contractors.—J. R. Wenlinger, 11 Broadway, New York; 2d Tuesday of each month, New York.

American Society of Mechanical Engineers.—Calvin W. Rice, 29 W. 39th St., New York.

American Wood Preservers' Association.—F. J. Angier, B. & O., Baltimore, Md.

Association of American Railway Accounting Officers.—C. G. Phillips, Highland Park, Ill. Annual meeting, June 24, Minneapolis, Minn.

Association of Railway Claim Agents.—C. W. Egan, B. & O., Baltimore, Md. Next convention, May, 1914, St. Paul, Minn.

Association of Railway Electrical Engineers.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago.

Association of Railway Telegraph Superintendents.—P. W. Drew, 112 West Adams St., Chicago. Next convention, May 20-23, New Orleans, La.

Association of Transportation and Car Accounting Officers.—G. P. Conard, 75 Church St., New York.

Association of Water Line Accounting Officers.—W. R. Evans, Chamber of Commerce, Buffalo, N. Y.

Bridge and Building Supply Men's Association.—L. D. Mitchell, Detroit Graphite Co., Detroit, Mich. Meeting with American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and August, Montreal.
CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursday, Montreal.
CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.
CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.
CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—L. S. Pomeroy, Old State Capitol building, St. Paul, Minn.; 2d Monday, except June, July, August and September, St. Paul.
ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after second Saturday, Harrisburg, Pa.
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. H. Hiles, Oliver building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.
FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Richmond, Va. Next convention, May 13, Hotel Galvez, Galveston, Tex.
GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.
INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, 11, rue de Louvain, Brussels, Belgium. Convention, 1915, Berlin.
INTERNATIONAL RAILWAY FUEL ASSOCIATION.—C. G. Hall, 922 McCormick building, Chicago. Annual convention, May 18-22, Chicago.
INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 829 West Broadway, Winona, Minn. Next convention, July 14-17, Hotel Sherman, Chicago.
INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio. Next convention, third Tuesday in August.
MAINTENANCE OF WAY & MASTER PAINTERS' ASSOCIATION OF THE UNITED STATES AND CANADA.—T. I. Goodwin, C. R. I. & P., Eldon, Mo. Next convention, November 17-19, 1914, Detroit, Mich.
MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York. Next annual meeting, May 26-29, Hotel Waldron, Philadelphia.
MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Karpen building, Chicago. June 10-12, Atlantic City, N. J.
MASTER CAR & LOCOMOTIVE PAINTERS' ASSOC. OF U. S. AND CANADA.—A. P. Dane, B. & M., Reading, Mass.
NATIONAL RAILWAY APPLIANCE ASSOC.—Bruce V. Crandall, 537 So. Dearborn St., Chicago. Meetings with Am. Ry. Eng. Assoc.
NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.
NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3rd Friday in month, except June, July and August, New York.
NORTHERN RAILROAD CLUB.—C. L. Kennedy, C. M. & St. P., Duluth, Minn.; 4th Saturday, Duluth.
PEORIA ASSOCIATION OF RAILROAD OFFICERS.—M. W. Rotchford, Union Station, Peoria; 2d Thursday.
RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.
RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 30 Church St., New York.
RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Penna. R. R., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.
RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOC.—J. Scribner, 1021 Monadnock Block, Chicago. Meetings with Assoc, Ry. Elec. Engrs.
RAILWAY FIRE PROTECTION ASSOCIATION.—C. B. Edwards, Mobile & Ohio, Mobile, Ala.
RAILWAY GARDENING ASSOCIATION.—J. S. Butterfield, Lee's Summit, Mo.
RAILWAY DEVELOPMENT ASSOCIATION.—W. Nicholson, Kansas City Southern, Kansas City, Mo.
RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Bethlehem, Pa.
RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio.
RAILWAY SUPPLY MANUFACTURERS' ASSOC.—J. D. Conway, 2135 Oliver bldg., Pittsburgh, Pa. Meetings with M. M. and M. C. B. Assocs.
RAILWAY TEL. & TEL. APPLIANCE ASSOC.—W. E. Harkness, 284 Pearl St., New York. Meetings with Assoc. of Ry. Teleg. Sups.
RICHMOND RAILROAD CLUB.—F. O. Robinson, Richmond, Va.; 2d Monday except June, July and August.
ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W., Sterling, Ill. Next convention, September 8-10, 1914, Chicago
ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis Mo.; 2d Friday in month, except June, July and Aug., St. Louis.
SALT LAKE TRANSPORTATION CLUB.—R. E. Rowland, 519 Boston building, Salt Lake City, Utah; 1st Saturday of each month, Salt Lake City.
SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmonds, 3868 Park Ave., New York. Meeting with annual convention Railway Signal Association.
SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago.
SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.
SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.
TOLEDO TRANSPORTATION CLUB.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.
TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo Iron Works, Hillsburn, N. Y. Meetings with Roadmasters' and Maintenance of Way Association.
TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.
TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.
TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie, Pittsburgh, Pa.; meetings monthly, Pittsburgh.
TRAFFIC CLUB OF ST. LOUIS.—A. F. Versen, Mercantile Library building, St. Louis, Mo. Annual meeting in November. Noonday meetings October to May.
TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7122 Stewart Ave., Chicago. Next convention, June 16, Jacksonville, Fla.
TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; first Saturday after first Wednesday.
TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.
TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y. Next meeting, August, Chicago.
UTAH SOCIETY OF ENGINEERS.—Fred D. Ulmer, Oregon Short Line, Salt Lake City, Utah; 3d Friday of each month, except July and August.
WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.
WESTERN RAILWAY CLUB.—J. W. Taylor, Karpen building, Chicago; 3d Tuesday of each month, except June, July and August.
WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Monday in month, except July and August, Chicago.

Traffic News

The annual banquet of the Chicago Transportation Association will be held on February 24 at the Hotel Sherman, Chicago. The speakers will be Levy Mayer and Glenn Frank.

The directors of the National Association of Manufacturers, at a meeting held in New York last week, adopted a resolution favoring the request of the Eastern Railroad for authority to make an increase in freight rates.

The Illinois Central has announced an arrangement with the United Fruit Company's steamship line for a new passenger service from Chicago to Havana, Cuba, by way of New Orleans, providing for an eight-day round trip, including a five-day stop at Havana, for a fare of $75.

The Official Classification Committee has announced hearings to consider recommendations of the Committee on Uniform Classification in New York on February 11 and in Chicago on February 26. Meetings to consider subjects docketed for the regular spring meeting will be held at New York on March 24 and at Chicago on March 19.

At the annual meeting of the Chamber of Commerce of the United States, to be held at Willard's Hotel, Washington, February 11, 12 and 13, Hon. Charles A. Prouty, director of the valuation work of the Interstate Commerce Commission, will speak on the work of that department. Mr. Prouty's address is scheduled for Wednesday evening. On Thursday, the principal topic will be "Trust Legislation," and among the speakers will be: President Charles R. Van Hise, of the University of Wisconsin; Louis D. Brandeis, Victor Morawetz and Henry R. Towne, president of the Yale & Towne Manufacturing Company.

The federal grand jury at Chicago on January 31 returned indictments for the alleged payment or receipt of rebates or preferential rates against Swift & Co., and three railways. The indictment against Swift & Co., which contains 60 counts, is said to be based on the payment of carload rates on L. C. L. shipments in so-called "peddler" cars. Attorneys for the company state that the condition had been discovered over a year ago and that the railroads were reimbursed for the difference between the C. L. AND L. C. L. rates. The indictments against the Pennsylvania lines, 16 counts, relate to refunds of switching charges on grain and flour shipments to the B. A. Eckhart Milling Company and the W. H. Merritt Company. The indictments against the Chicago & North Western, 6 counts, are said to involve the collection of less than the legal rate on shipments of coal to David Rutter & Co.

The question of the reasonableness of the increased rates for suburban fares on the New York, New Haven & Hartford, which is now before the courts of the State of New York will also come up for decision in the Federal Courts, the railroad company having applied to the district court in New York City this week for an injunction to suspend the operation of the order of the Interstate Commerce Commission making a reduction in the season ticket rates between New York and points in Connecticut. This order went into effect January 15. Asked in court why the order had been thus obeyed, the road replied that it was because of the severe penalty to which it would have been liable for disobedience of an order from the commission. The counsel for the New Haven road was ex-Judge Walter Noyes, who recently resigned his seat on the Federal bench in New York. The court reserved decision on the application.

The Rates on Peanuts

The growers of peanuts have had their day in court regarding the effect upon their interests of allowing railways to raise their rates. The adjustment of the relation of specific rates is an important matter, and worth attention by itself. The general advance of all rates on the petitioning railways is asked in the interest of everybody, all railways and all shippers. The smaller matter ought not to be allowed to impede and prejudice the greater. It is not suggested that the peanut growers are not right, and ought not to have all their rights. The suggestion is

that they should proceed independently, and not obstructively. The railways gained their precedence by beginning their action three years ago, when the wrongs of the peanut growers were not presented. Those wrongs will not be increased by a general advance which does not disturb the relation of rates. The peanut growers will suffer if everybody else suffers by the railways being starved into a decline through inability to meet the cost of living under union regulation of wages and Government regulation of rates.—*New York Times.*

Car Surpluses and Shortages

Arthur Hale, chairman of the committee on relations between railroads of the American Railway Association, in presenting statistical bulletin No. 159-A, giving a summary of car surpluses and shortages by groups from September 26, 1912, to January 15, 1914, says:

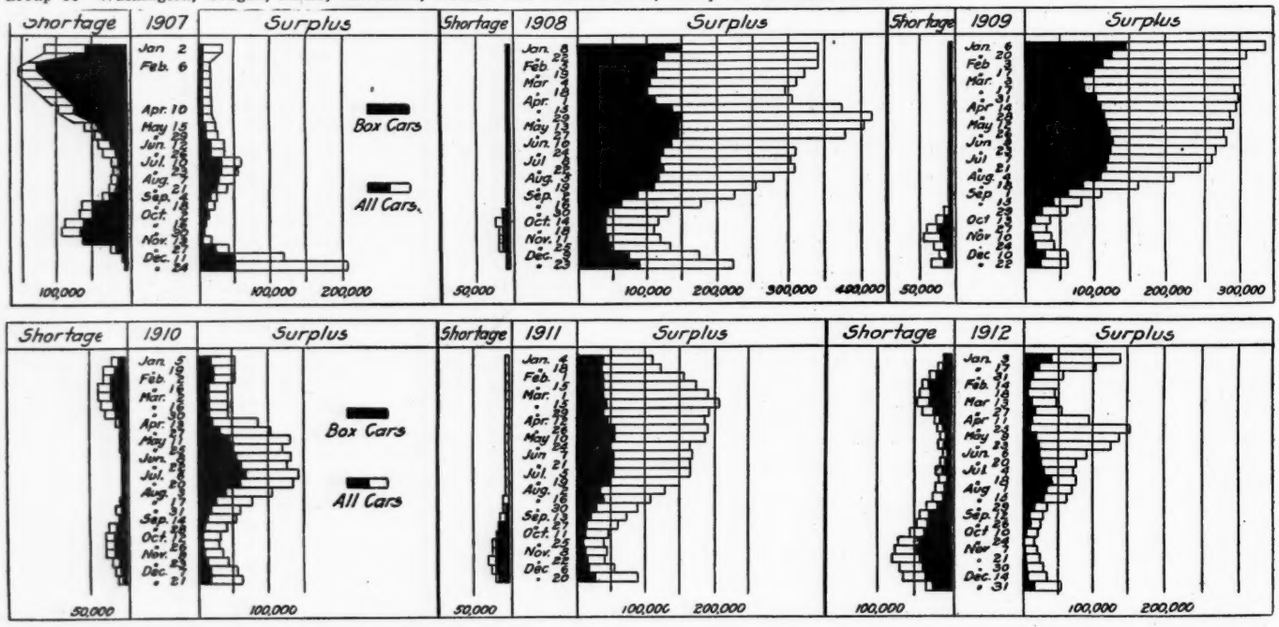
The total surplus on January 15, 1914, was 217,274 cars; on January 1, 1914, 190,521 cars, and on January 15, 1913, 53,230 cars.

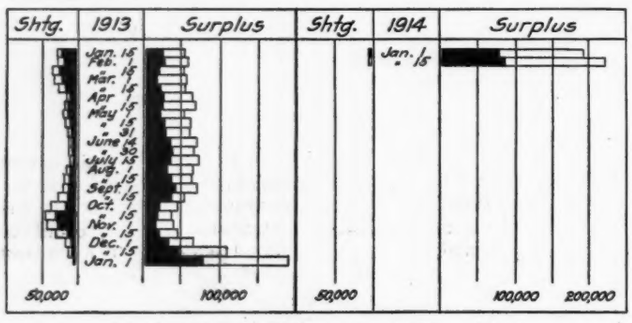
Compared with the preceding period; there is an increase of 26,753 cars, of which 6,931 is in box, 3,363 in flat, 14,614 in coal and gondola, and 1,845 in miscellaneous car surplus. The increase in box car surplus is in groups 6 (Iowa, Illinois, Wisconsin and Minnesota), 8 (Kansas, Colorado, Oklahoma, Missouri and Arkansas), 9 (Texas, Louisiana and Mexico), 10 (Washington, Oregon, Idaho, California, Nevada and Arizona), and 11 (Canadian Lines). The increase in flat car surplus is in groups 1 (New England Lines), 2 (New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania), 3 (Ohio, Indiana, Michigan and Western Pennsylvania), 5 (Kentucky, Tennessee, Mississippi, Alabama and Florida), and 6, 9, 10 and 11 (as above). The increase in coal and gondola car surplus is in groups 1, 2, 3 (as above), 4 (the Virginias and Carolinas), 5, 7 (Montana, Wyoming and the Dakotas), 8, 9 and 10 (as above). The increase in miscellaneous car surplus is in groups 3, 6 and 10 (as above).

Car Surpluses and Shortages

Date	No. of roads.	Surpluses: Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.	Shortages: Box.	Flat.	Coal, and hopper. gondola	kinds. Other	Total.
Group *1.—January 15, 1914	7	15	733	633	28	1,409	536	0	0	186	722
" 2.— " 15, 1914	32	5,699	1,070	22,362	4,859	33,990	6	0	350	3	359
" 3.— " 15, 1914	29	10,695	1,967	40,065	4,026	56,753	101	0	109	26	236
" 4.— " 15, 1914	13	8,532	1,066	4,419	2,361	16,378	0	0	254	59	313
" 5.— " 15, 1914	24	4,393	753	7,347	1,168	13,661	0	65	55	0	120
" 6.— " 15, 1914	28	9,963	1,136	3,609	5,414	20,122	269	56	15	1	341
" 7.— " 15, 1914	3	350	85	460	859	1,754	100	0	0	15	115
" 8.— " 15, 1914	18	5,552	432	2,770	2,189	10,943	18	12	0	36	66
" 9.— " 15, 1914	12	7,423	431	468	950	9,272	0	22	6	4	32
" 10.— " 15, 1914	19	9,329	3,819	5,016	11,275	29,439	12	0	0	27	39
" 11.— " 15, 1914	4	18,805	2,406	0	2,342	23,553	42	0	0	0	42
Total	189	80,756	13,898	87,149	35,471	217,274	1,084	155	789	357	2,385

*Group 1 is composed of New England lines; Group 2—New York, New Jersey, Delaware, Maryland and Eastern Pennsylvania lines; Group 3—Ohio, Indiana, Michigan and Western Pennsylvania lines; Group 4—West Virginia, Virginia, North and South Carolina lines; Group 5—Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida lines; Group 6—Iowa, Illinois, Wisconsin and Minnesota lines; Group 7—Montana, Wyoming, Nebraska, North Dakota and South Dakota lines; Group 8—Kansas, Colorado, Missouri, Arkansas and Oklahoma lines; Group 9—Texas, Louisiana and New Mexico lines; Group 10—Washington, Oregon, Idaho, California, Nevada and Arizona lines; Group 11—Canadian lines.





Car Surpluses and Shortages, 1907 to 1914

The total shortage on January 15, 1914, was 2,385 cars; on January 1, 1914, 1,671 cars, and on January 15, 1913, 24,791 cars.

Compared with the preceding period; there is an increase in the total car shortage of 714 cars, of which 14 is in box, 732 in coal and gondola, 247 in miscellaneous, and a decrease of 279 in flat car shortage. The increase in box car shortage is in groups 1, 2 and 6 (as above). The increase in coal and gondola car shortage is in groups 2, 3, 4, 5 and 6 (as above). The increase in miscellaneous car shortage is in groups 1, 3, 4, 7 and 8 (as above). The decrease in flat car shortage is in group 8 (as above).

Compared with the corresponding period of 1913; there is an increase in the total car surplus of 164,044 cars, of which 60,977 is in box, 9,367 in flat, 74,998 in coal and gondola, and 18,702 in

miscellaneous car surplus. There is a decrease in the total car shortage of 22,406 cars, of which 16,485 is in box, 1,938 in flat, 2,720 in coal and gondola and 1,263 in miscellaneous car shortage.

The accompanying table gives car surplus and shortage figures by groups for the last period covered in the report and the diagram shows total bi-weekly surpluses and shortages from 1907 to 1914.

Extra Fare for Exclusive Use of Drawing Rooms and Compartments

After March 1 on railways east of the Mississippi passengers paying for the exclusive use of a Pullman drawing room will be required to pay for two railway fares in addition to the rate for the drawing room, so that the entire charge will be the same as if two persons occupied the room; and a person paying for the exclusive use of a compartment will be required to pay a fare and a half in addition to the compartment rate. This rule has been adopted by the railways in the New England, Trunk Line, Central and Southeastern passenger associations and similar action is being considered by the Western, Southwestern and Transcontinental passenger associations with a strong probability that the rule will be made uniform throughout the United States. Passenger officers argue that when one person obtains the exclusive use of a drawing room by paying the Pullman Company for it the railway is deprived of a chance to sell another ticket, and that the accommodations furnished are the same as would be provided for two persons. On excess fare trains the double fare or one and a half fare will be based on the excess fare rate.

Car Location

The accompanying table, which was taken from bulletin No. 14, of the American Railway Association, gives a summary of freight car location by groups on January 1, 1914:

CAR LOCATION ON JAUNARY 1, 1914.

	New England.	N.Y., N.J., Del., Md., Eastern Pa.	Ohio, Ind., Mich., Western Pa.	Va., W. Va., No. & So. Carolina.	Ky., Tenn., Miss., Ala., Ga., Fla.	Iowa, Ill., Wis., Minn.	Mont., Wyo., Neb., Dakotas.	Kans., Colo., Okla., Mo., Ark.	Texas, La., New Mexico.	Oregon, Idaho, Nev., Cal., Ariz.	Canadian Lines.	Grand Total.
Total Cars Owned	87,850	698,038	278,939	205,808	164,582	491,155	20,054	157,074	32,621	138,060	148,532	2,422,713
Home Cars on Home Roads	46,526	427,495	110,872	120,035	89,718	340,226	7,974	86,674	15,723	77,767	100,843	1,423,853
Home Cars on Foreign Roads	41,324	270,543	168,067	85,773	74,864	150,929	12,080	70,400	16,898	60,293	47,689	998,860
Foreign Cars on Home Roads	43,584	258,809	196,150	84,920	66,423	145,965	12,345	67,360	34,303	55,868	32,915	998,642
Total Cars on Line	90,110	686,304	307,022	204,955	156,141	486,191	20,319	154,034	50,026	133,635	133,758	2,422,495
Excess or Deficiency	2,260	*11,734	28,083	*853	*8,441	*4,964	265	*3,040	17,405	*4,425	*14,774	*218
Surplus	1,683	48,825	32,109	15,394	14,173	4,669	1,840	10,325	4,757	24,555	22,191	190,521
Shortage	255	24	26	31	181	197	221	388	34	64	250	1,671
Shop Cars—												
Home Cars in Home Shops	4,704	48,208	20,393	14,161	9,455	26,165	668	10,429	2,261	5,406	5,439	147,289
Foreign Cars in Home Shops	880	8,047	8,268	2,101	1,422	3,961	665	2,100	1,125	2,421	564	31,554
Total Cars in Shops	5,584	56,255	28,661	16,262	10,877	30,126	1,333	12,529	3,386	7,827	6,003	178,843
Per Cent. to Total Cars Owned—												
Home Cars on Home Roads	52.96	61.24	39.75	58.32	54.51	69.27	39.76	55.18	48.20	56.33	67.89	58.77
Total Cars on Line	100.56	98.32	110.00	99.59	94.87	98.99	101.32	96.77	153.36	96.79	90.05	99.99
Home Cars in Home Shops	5.35	6.91	7.31	6.88	5.75	5.36	3.33	6.64	6.93	3.92	3.66	6.08
Foreign Cars in Home Shops	.81	1.15	2.97	1.02	.86	.81	3.32	1.23	3.45	1.75	.38	1.30
Total Cars in Shops	6.16	8.06	10.28	7.90	6.61	6.17	6.65	7.87	10.38	5.67	4.04	7.38

*Denotes deficiency.

National Industrial Traffic League Wants Box Car Pool

At the annual meeting of the National Industrial Traffic League, held at Chicago on November 13, the committee on transportation instrumentalities rendered a report calling attention to investigations being made by the carriers, respecting better regulation of car supply, having in mind the pooling of cars and the adoption of a standard box car. Appreciating that the formulating of rules for the use and interchange of freight cars rests with the carriers, the committee was of the opinion that the league should commend the investigation of this matter by the railroads and that from the shippers' point of view this is a matter of such importance as to warrant special action by the carriers. The league adopted the report and instructed the committee to co-operate with the American Railway Association in this matter. Following a meeting of the committee on January 29, J. S. Marvin, chairman of the committee, addressed a letter to Arthur Hale, chairman of the committee on relations between railroads, and to E. C. Carter, chairman of the committee on maintenance, of the American Railway Association, urging that the rules requiring the return of all cars to the owning roads be amended and possibly replaced by a pooling of equipment, or at least a large part of it, particularly box cars.

The letter to Mr. Hale is in part as follows:

"We are impressed with the fact that within the past few years there has been marked improvement in car efficiency on the part of shippers. With the increased capacity of the more recently constructed cars has come an increase in loads, yet with this has come a decrease in the average time taken by shippers to load and unload these greater units. At the same time it appears that the average mileage per day of loaded cars has not kept pace with the improvement made by shippers and that the average attained of something less than 25 miles per day is not what it ought to be.

"We are of the opinion that this is due in large measure, perhaps, to the American Railway Association car service rules, the basis of which is that all freight cars must be returned to the owning road. In other words, that in supplying shippers with empty cars the original line is not free to permit the shipper to use the most available car, but is restricted to furnishing cars which the load will take to or towards home. Shipping interests have observed that in the operation of this rule a tremendous amount of apparently unnecessary switching is involved which congests terminals and yards, all of which naturally interrupts traffic. Car shortage is aggravated, empty haul increased and the enforcement of home routing of special equipment, which really requires such handling, is rendered more difficult.

"It is our understanding that railway operating officials of wide experience have frequently recommended the pooling of cars, particularly common box cars. We do not overlook the fact that box cars now in service differ greatly in size and carrying capacity, and that it might not be possible to at once pool all cars, but it occurs to us that the principal railroads own a great many cars which are practically alike, for instance, the standard 36-foot box cars, and the situation would be very much relieved if such cars could be grouped in a pool.

"We appreciate that the details of any plan that is adopted must of necessity be worked out by the carriers, but it does seem to us that the carriers have not progressed in securing the maximum efficiency out of freight cars to the extent that the shippers have, and that the American Railway Association should at once adopt measures to bring about this result."

The letter to Mr. Carter contains the following:

"It is claimed by some that pooling is not practicable except with respect to similar cars. If this objection is valid it is important that standardization be accomplished at once. It has occurred to us that a practical standard for cars could be arrived at promptly if only the body features, such as cubical and weight capacity, length, width, height and door openings, were designated as standard features without necessarily at once attempting to arrive at a standard for all details.

"In any event we cannot urge you too strongly . . . and it is our desire to render any assistance in our power. . . ."

Commission and Court News

INTERSTATE COMMERCE COMMISSION

The commission has further suspended from February 21 to August 21, an item in an Illinois Central tariff increasing rates on cottonseed, in carloads, from certain points on the Illinois Central in Mississippi, to Memphis, Tenn.

The commission has further suspended from February 12 to August 12, a Southern railway tariff providing for increased rates on tan bark in carloads from Southern railway points in North and South Carolina to Asheville, N. C.

The commission has suspended from February 12 to August 12 tariffs of the Buffalo, Rochester & Pittsburgh, etc., increasing rates on grain, in carloads, ex-lake, from Buffalo, N. Y., to Pittsburgh, Pa., and points taking the same rates.

The commission has further suspended from February 12 to August 12 an item in a tariff of M. P. Washburn, agent, providing for increased rates on black strap molasses in tank cars from New Orleans and Port Chalmette, La., to Knoxville, Tenn.

The commission has further suspended from February 18 to August 18 an item in a tariff of F. A. Leland, agent, and one of Eugene Morris, agent, proposing increased rates on salt, in carloads, from points east of the Mississippi to points in Louisiana.

Emigrant Movables to South Dakota

Opinion by Commissioner McChord:

The Chicago, St. Paul, Minneapolis & Omaha has proposed to increase the rate on emigrant movables from Chicago, St. Paul and other points to points in South Dakota located on the South Dakota Central. The commission finds that the proposed rates are not unreasonable. Carriers, however, will be expected to remove an undue discrimination against eastern South Dakota points as compared to eastern Nebraska points. (29 I. C. C., 40.)

Fourth Section Application Denied

D. Maier & Company v. Southern Pacific. Opinion by the commission:

The commission finds that a rate of 90 cents per 100 lb. for the transportation of sugar in carloads from Los Angeles and Los Alamitos, Cal., to Benson, Ariz., is unreasonable and as compared to the rate of 60 cents to El Paso, Tex., to which Benson is intermediate, in violation of the fourth section of the act. Application for relief from the provisions of that fourth section is denied and it is ordered that the rate to Benson should not be in excess of 60 cents. (29 I. C. C., 103.)

Reparation Arising Out of Tift and Central Yellow Pine Association Cases

Eastman Gardiner & Company et al v. Illinois Central et al. Opinion by Commissioner Clements:

This complaint involves a claim for reparation arising out of the Tift and Central Yellow Pine Association cases in which an increase of 2 cents per 100 lb. in the rate on yellow pine lumber from the producing territory south of the Ohio and Mississippi rivers when consigned to the Ohio river, locally or for beyond was condemned. This is the last of a large number of claims, all of the others having been paid by the carriers under a compromise agreement on the basis of 67 cents on the dollar. The commission finds that the defendants are justified in their belief that the claimant did by his actions accept the agreement at least impliedly. No reparation, therefore, is awarded. (29 I. C. C., 94.)

STATE COMMISSIONS

The Illinois Public Utilities Commission has issued a docket of petitions for additions and changes in the Illinois commissioners' classification, to be considered at a meeting in Chicago on February 18.

The Public Service Commission of Pennsylvania has modified its recent order in regard to crossings; and the railroads, telegraph companies, etc., will not have to secure the approval of the commission for running wires, etc., across each other's lines where there is an agreement between the companies.

The Public Service Commission of Pennsylvania has issued an order allowing railroads to announce excursions without complying with the 30 day limit for the publication of tariffs. Excursions which are to be begun and finished within three days may be run on one day's notice; and those limited to 30 days may be established on notice of 3 days.

The railroad commission of Louisiana, by an order issued January 27, requires that rates for the transportation of merchandise by express in that state shall be made on the same basis as that prescribed by the Interstate Commerce Commission for interstate traffic. Existing commodity rates which have been prescribed by the commission are continued in force.

At the last meeting of the Louisiana Railroad Commission a plan was submitted by the Wells-Fargo Express Company—acting in behalf of all the express companies in Louisiana, embodying a system of zone rates which it is estimated will save shippers fully $100,000. The new rate will be effective for packages under 99 lb.; and for shipments weighing 100 lb. and over there is a small increase. The old charge of 10 cents for each package where the freight was transferred at junctions will be abandoned. The Railroad Commission will not take action until next week.

The railroad commission of Louisiana has denied a petition in which the demand was made that passenger fares on mixed trains be fixed at one-third the regular rate. The order of the commission says: The service rendered by the mixed trains is purely an accommodation or convenience service, established by the carriers at the solicitation of the traveling public, particularly salesmen. Many roads are carrying passengers on mixed and freight trains, under orders of the commission, and under protest. The carriers, if the commission would so permit, would abandon this class of service. The danger of personal injury is great, and the personal damage claims arising from injuries to those traveling on these inferior trains is many times greater than the claims for injuries from those traveling on exclusive passenger trains. The revenue derived from this service is infinitesimal, the passengers invariably riding only short distances. On the whole, the service is declared by the carriers to be utterly undesirable.

PERSONNEL OF COMMISSIONS

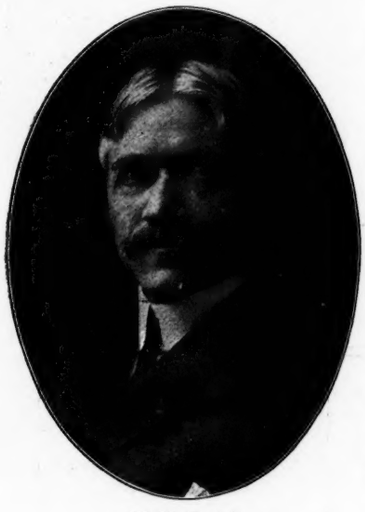
Henry Clay Hall, of Colorado Springs, Colo., has been appointed a member of the Interstate Commerce Commission. Mr. Hall was born January 3, 1860, in New York City. He was graduated from Amherst College in 1881 with the degree of A.M., and from Columbia Law School in 1883 with the degree of LL.B. He was admitted to the practice of law in New York in 1883. He practiced law in Paris, France, from 1885 to 1892, during which time he was counsel to the United States Legation for four years from 1888 to 1892. He then returned to America, locating in Colorado Springs, Colo. Subsequently he became general attorney for the Arkansas, Louisiana & Gulf Railway. He was also general counsel for the Colorado College at Colorado Springs, and many other corporations. Mr. Hall was mayor of Colorado Springs, 1905-1907, and also has lectured on law at Colorado College. He was president of the Colorado State Bar Association, 1911-1912.

H. C. Hall

Everett Jennings, an assistant state's attorney of Cook county, has been appointed chief counsel of the Illinois Public Utilities Commission.

The Interstate Commerce Commission has appointed five examiner-attorneys who will conduct hearings in various cities and relieve members of the commission of much of this class of work except in the most important cases. In addition to W. J. Wood and O. F. Berry, whose appointments have been noted in these columns, George N. Brown, A. B. Pugh and E. W. Hines, who have been in the service of the commission, have been appointed examiner-attorneys. Examiner R. D. Rhynder has been appointed chief examiner, to succeed Mr. Brown.

President Wilson has appointed as a member of the Interstate Commerce Commission W. M. Daniels, of New Jersey, for the last three years a member of the Board of Public Utilities of that state. Winthrop More Daniels was for nearly twenty years professor of Political Economy at Princeton University, of which President Wilson was president. Professor Daniels was born at Dayton, Ohio, September 30, 1867, and was graduated from Princeton in 1888. When Mr. Wilson became governor of New Jersey, in 1911, he appointed Professor Daniels to membership on the board of public utilities of that state, which position he has held down to the present time. While he was a member of the faculty of the University, he wrote text books which found favor in many colleges. One of these is "The Elements of Public Finance." He lectured on public finance and on railway economics. He has also been an editorial writer on the New York *Evening Post*. As a commissioner in New Jersey, Professor Daniels has the reputation of being fair and firm.



W. M. Daniels

Alonzo G. Pack, district inspector of locomotive boilers, Interstate Commerce Commission, Denver, Colo., has been appointed assistant chief inspector to succeed Frank McManamy, who has been promoted to chief inspector. Mr. Pack was born July 22, 1865, at Princeton, W. Va. His first 15 years were spent on a farm, and in 1880 he entered the service of the Norfolk & Western on construction work. In 1882 he went to the Chesapeake & Ohio as an apprentice in the boiler shop. He also served on that road as a brakeman. In 1887 he went to Denver, and worked for the Union Pacific and the Denver & Rio Grande as locomotive fireman. In 1895 he became connected with the Colorado Midland as a freight and passenger engineer. In 1900 he went to the Colorado Springs & Cripple Creek as a locomotive engineer, serving in that position until his appointment in 1911 as district inspector of locomotive boilers, Interstate Commerce Commission, with headquarters at Denver, Colo.

A. G. Pack

J. Beaumont, signal engineer of the Chicago Great Western, has been appointed senior signal engineer, board of valuation engineers, Interstate Commerce Commission, for the third district, with headquarters at Chicago, effective February 1. Mr. Beaumont was born in Staffordshire, England, August 10, 1874, and came to the United States when 14 years of age. Later he began railway work as machinist's apprentice in the Mott Haven shops of the New York Central & Hudson River and in three years became a journeyman machinist. Subsequently he was stationary engineer in the Grand Central Station, New York, resigning in 1898 to enlist in the army for the war with Spain. In 1899 he went to the Standard Railway Signal Company, being made foreman in 1901 and general foreman the following year. He returned to railway service in 1904 as assistant supervisor of the Western division of the New York Central, and a year later was made supervisor at Buffalo. He then became connected with the General Railway Signal Company in 1906 as assistant engineer of sales and installation, and the next year was made supervisor of interlocking of the Atlantic Coast Line. In 1908 he went to Panama as signal engineer of the Panama Railroad, and two years later he returned to the United States to become signal engineer of the Chicago Great Western, which position he now resigns to become senior signal engineer with the board of valuation engineers, as above noted.

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J. Beaumont

COURT NEWS

At Cincinnati February 3 the United States Circuit Court of Appeals affirmed fines aggregating $62,000 imposed by the lower court on the Hocking Valley Railroad Company and the Sunday Creek Coal Company on charges of giving and taking rebates.

It is reported that the attorney general of Texas has agreed to a compromise which will result in the abandonment of the suit against the Missouri, Kansas & Texas under the state anti-trust laws. The conditions have not been made public.

The Duluth & Northern Minnesota has filed a petition in the federal court at Duluth, Minn., asking an injunction to restrain the operation of the Cashman distance tariff law, passed by the Minnesota legislature and made effective on January 1. The road contends that the new rates are confiscatory.

Judge McPherson, of the United States Court at Kansas City, Mo., on January 30 dissolved the injunction restraining the attorney general of Missouri from proceeding in the state courts with suits against the railways to recover overcharges collected during the state rate case litigation. He also dissolved the original injunction which restrained the application of the state rates until Judge McPherson's decision was reversed by the Supreme Court. The court also appointed a master to receive such claims for overcharges as might be filed in the federal court.

A LONG DISTANCE TELEPHONE LINE IN AUSTRIA.—The director of posts and telephones of Roumania has recently announced that a direct wire is now open between the cities of Bucharest, the capital of Roumania, and Vienna, the capital of Austria. This telephone line must be well over 600 miles in length, because an absolutely straight line drawn between the two cities would be at least 500 miles long. The telephone rate for three minutes between the two cities will be 6.50 francs, or $1.25. In the event of a demand for the quickest possible connection, however, the regular rate is tripled. A night rate applies from 10 p. m. to 7 a. m., and is one-half the day rate.

Railway Officers

Executive, Financial, Legal and Accounting

Daniel Breck has resigned as vice-president of the Missouri, Oklahoma & Gulf.

A. B. Newell has been elected president of the Toledo Terminal Railroad, with headquarters at Detroit, Mich.

I. W. Booth has been appointed assistant secretary of the Norfolk & Western, with office at Philadelphia, Pa., succeeding H. W. Griffith, deceased.

Bluford Wilson, vice-president of the Chicago, Peoria & St. Louis, has been elected president, with headquarters at Springfield, Ill., succeeding John P. Ramsey, resigned.

W. G. Bierd, vice-president and general manager of the Minneapolis & St. Louis, has been elected president of the Chicago & Alton, with headquarters at Chicago, succeeding B. A. Worthington, resigned.

G. W. Mulks, auditor of disbursements of the Southern Pacific Company at New York, has been appointed assistant controller, with office at New York, succeeding C. C. Barry, resigned to accept service with another company.

Frederick S. Wynn, purchasing agent of the Southern Railway, with office at Washington, D. C., has been promoted to secretary with headquarters at New York. He succeeds as secretary R. D. Lankford, deceased, who was vice-president and secretary. Mr. Wynn was born on September 8, 1879, at Danville, Va., and graduated from Georgetown University School of Law in 1906. He entered the service of the Southern Railway in April, 1900, in the law department at Washington, D. C., and later served as secretary and also as chief clerk to the assistant to the president and vice-president. In January, 1909, he was appointed assistant secretary of the same road. He was made purchasing agent in August of the following year which position he held at the time of his recent appointment as secretary of the same road as above noted.

F. S. Wynn

Delos W. Cooke, general traffic manager of the Erie at New York has been elected vice-president and general traffic manager, with headquarters at New York. Mr. Cooke was born on December 31, 1863, at Lewiston, N. Y., and began railway work in May, 1881, as a clerk in the local freight office of the Chicago & North Western at Council Bluffs, Iowa. From 1884 to 1887, he was chief clerk in the general passenger department of the Sioux City & Pacific, now a part of the Chicago & North Western, and then to September, 1890, he was successively rate clerk in the general passenger office of the Chicago, St. Paul, Minneapolis & Omaha at St. Paul, Minn., clerk in the passenger department of the Texas & Pacific, and clerk in the passenger department of the Wisconsin Central Lines at Milwaukee, Wis. In September, 1890, he was appointed assistant to the general passenger and ticket agent of the Chicago Great Western, and in January, 1893, was promoted to assistant general passenger and ticket agent of the same road. From November, 1895, to July, 1901, he was assistant general passenger agent of the New York, Lake Erie & Western, and its successor, the Erie, and then to January, 1905, was general passenger agent of the same road. He was then promoted to assistant general traffic manager, and on February 1, 1907, became general traffic manager of the same road at Chicago, and since April 1, 1909, was general traffic manager at New York, which position he held at the time of his recent election as vice-president and general traffic manager of the same road, as above noted.

Clarence William Huntington, general superintendent of the Central of New Jersey, has been elected vice-president and general manager of the Minneapolis & St. Louis, with headquarters at Minneapolis, Minn., succeeding W. G. Bierd, resigned. Mr. Huntington was born on May 31, 1857, at Newark, N. J., and was educated in the public schools and the Newark Academy. He began railway work in September, 1876, as a freight brakeman on the Chicago, Rock Island & Pacific, and for 16 years held various positions on the same road. He was then for one year assistant superintendent of the Des Moines Northern & Western, now a part of the Chicago, Milwaukee & St. Paul, and later for one year was superintendent of the same road. From November, 1894, to May 12, 1902, he was general superintendent of the Iowa Central and then went to the Central of New Jersey as general superintendent, with headquarters at New York, which position he held at the time of his recent election as vice-president and general manager of the Minneapolis & St. Louis as above noted.

C. W. Huntington

Operating

William Coughlin, superintendent of the Missouri, Oklahoma & Gulf, has been appointed general manager, with headquarters at Muskogee, Okla.

Morton Riddle, general superintendent of the Atlantic Coast Line at Jacksonville, Fla., has been appointed general manager of the Florida East Coast with headquarters at St. Augustine, Fla.

John R. Jones, trainmaster of the International & Great Northern at San Antonio, Tex., has been appointed superintendent of the San Antonio division, with headquarters at San Antonio, succeeding A. G. Whittington, promoted.

J. E. McMahon, superintendent of the Pecos division of the Atchison, Topeka & Santa Fe, has been appointed superintendent of the Colorado division, with headquarters at Pueblo, Colo., succeeding C. H. Bristol, promoted, and F. J. Evans, trainmaster, succeeds Mr. McMahon, with office at Clovis, N. Mex.

The Oregon Electric and United Railways and Astoria division of the Spokane, Portland & Seattle, have been consolidated into one operating division, to be known as the Portland division. A. J. Davidson, superintendent of the Oregon Electric & United Railways, has been appointed superintendent in charge of this new division, with headquarters at Portland, Oregon. Effective January 25.

C. W. Akers, superintendent of the Central division of the Norfolk Southern at New Bern, N. C., has been appointed superintendent of the western division, with headquarters at Raleigh, N. C., suceeding G. A. Bradley, resigned, and J. C. Lewis, trainmaster at New Bern, has been appointed acting superintendent of the central division, with headquarters at New Bern, N. C., succeeding Mr. Akers.

J. N. Brand, general superintendent of the Second division of the Atlantic Coast Line at Savannah, Ga., has been appointed general superintendent of the Third division, with headquarters at Jacksonville, Fla., succeeding M. Riddle, resigned to go to the Florida East Coast. R. A. McCranie, superintendent of the

Waycross district at Waycross, Ga., succeeds Mr. Brand, and O. T. Waring, engineer of roadway at Savannah, succeeds Mr. McCranie.

T. B. Hamilton, general superintendent of the Central System of the Pennsylvania Lines West of Pittsburgh at Toledo, Ohio, has been appointed general manager of the Vandalia, with headquarters at St. Louis, Mo., succeeding A. M. Schoyer. W. C. Downing, superintendent of the Pittsburgh division, Pennsylvania Lines West at Pittsburgh, Pa., succeeds Mr. Hamilton. J. C. McCullough, superintendent of the Richmond division at Richmond, Ind., succeeds Mr. Downing. G. LeBoutillier, division engineer of the Southwest System, at Pittsburgh, succeeds Mr. McCullough as superintendent of the Richmond division.

C. E. Burr, acting general superintendent of transportation of the Delaware & Hudson at Albany, N. Y., has been appointed general superintendent of transportation, with office at Albany, succeeding C. E. McKim, assigned to other duties. C. A. Morgan, acting superintendent of the Pennsylvania division at Carbondale, Pa., has been appointed superintendent of that division. J. J. Rounds, assistant trainmaster at Carbondale, has been appointed trainmaster, with office at Carbondale, and E. G. Knapp succeeds Mr. Rounds. J. T. Loree, assistant trainmaster at Carbondale, has been appointed trainmaster, with office at Oneonta, N. Y., succeeding D. H. Kelly, who becomes coal storage and transfer agent, with office at Albany, succeeding H. W. Harrison, resigned, and M. W. Sullivan has been appointed assistant trainmaster, with office at Oneonta, succeeding W. H. Bell, assigned to other duties.

J. W. Meredith, superintendent of the New Jersey Southern division of the Central of New Jersey at East Long Branch, N. J., has been appointed general superintendent with headquarters at New York, succeeding C. W. Huntington, resigned to go to the Minneapolis & St. Louis. Samuel B. Zartman, general agent of the operating department at Newark, N. J., succeeds Mr. Meredith. Charles H. Stein, engineer maintenance of way, at Jersey City, N. J., has been appointed superintendent of the New Jersey Central and the Lehigh & Susquehanna divisions, succeeding E. E. Kerwin, resigned to go to the Minneapolis & St. Louis. Abiel D. Edgar, trainmaster at Jersey City, has been appointed assistant superintendent of the New Jersey Central division with headquarters at Jersey City, and N. G. Campbell, trainmaster at Mauch Chunk, Pa., has been appointed general agent at Newark, succeeding Mr. Zartman.

M. Magiff, car accountant and superintendent of telegraph of the Central Vermont at St. Albans, Vt., has been appointed superintendent of car service in charge of car service and car accounting. S. S. Russell, general superintendent of transportation at St. Albans, has been appointed superintendent of the Northern division, with office at St. Albans, Vt., succeeding J. F. Keefe, who becomes assistant superintendent of the Northern division, with office at St. Albans, and the position of general superintendent of transportation has been abolished. S. E. McKenney, trainmaster at Palmer, Mass., has been appointed terminal trainmaster at St. Albans in charge of yard work, succeeding F. J. McEnany, who has been appointed general agent at St. Albans in charge of local freight and customs work. The office of trainmaster of the Southern division and Third and Fourth districts of the Northern division, and the office of customs agent at St. Albans have been abolished.

The following re-arrangement of general divisions and new appointments are announced on the Chesapeake & Ohio and the Chesapeake & Ohio of Indiana, effective February 1. J. R. Cary, who was general superintendent of the West Virginia general division at Huntington, W. Va., is now general superintendent of the new Eastern general division which includes all lines east of Handley, W. Va., with headquarters at Clifton Forge, Va. J. P. Stevens, who was general superintendent of the Virginia general division at Richmond, Va., is now general superintendent of the new Central general division, which includes the main line and branches, Handley, W. Va., to Elkhorn City, Ky., with headquarters at Huntington, W. Va., and W. R. Hudson, who was general superintendent of the Kentucky general division at Covington, Ky., is now general superintendent of the new Western general division, which includes all lines from Big Sandy Junction, Ky., west and including the Chesapeake & Ohio of Indiana, with headquarters at Covington, Ky. The jurisdiction of J. A. Fox, superintendent, Cincinnati division, has been extended over the Ashland division, with headquarters at Ashland, Ky., and W. S. Taylor has been appointed superintendent of terminals, with headquarters at Covington, Ky. H. H. Morris, superintendent of the Ashland division of the Chesapeake & Ohio at Ashland, Ky., becomes assistant superintendent, with headquarters at Clifton Forge, Va., and L. B. Allen, assistant chief engineer at Richmond, Va., has been appointed superintendent of the Huntington and Big Sandy divisions, with headquarters at Huntington, W. Va.

John W. Meredith, who has been appointed general superintendent of the Central of New Jersey, with headquarters at New York, was born in March, 1862, at Maiden Creek, Pa., and was educated at the public schools and at Carroll Institute, Reading. He began railway work as an extra station agent on the Philadelphia & Reading in 1885, and later in the same year entered the service of the Central of New Jersey, at Winslow Junction, N. J. He was agent at West End during the summer of 1886, becoming extra agent on the New Jersey Southern division of the same road the following winter. From 1887 to 1897, he was train despatcher at East Long Branch on the same division, and then for four years was trainmaster of that division. He was appointed superintendent in 1911, which position he held at the time of his recent appointment as general superintendent of the same road as above noted.

J. W Meredith

Traffic

J. M. Crute has been appointed assistant general freight and passenger agent of the Ocilla Southern, with headquarters at Ocilla, Ga.

J. W. Howe has been appointed coal freight agent of the Chesapeake & Ohio and the Chesapeake & Ohio of Indiana, with office at Richmond, Va.

John N. Cornatzer, assistant general passenger agent of the St. Louis & San Francisco, at Memphis, Tenn., has been appointed general passenger agent, with headquarters at Memphis, effective February 1.

E. L. Duncan, in addition to his duties as manager mail traffic of the Chicago & Eastern Illinois, is appointed general baggage agent, with office at Chicago, vice L. S. Winslow, assigned to other duties. Effective February 1.

T. R. Ryan having resigned to accept service elsewhere, the position of traffic manager of the Mexico North Western has been abolished, and F. G. Savage has been appointed acting general freight and passenger agent, with office at Ciudad Juarez, Chihuahua, Mexico.

R. M. Chastain has been appointed commercial freight agent of the Missouri Pacific, St. Louis, Iron Mountain & Southern, Denver & Rio Grande and Western Pacific, at Monroe, La., succeeding S. W. Bradford, who has been transferred to Texarkana, Ark.-Tex., in place of Mr. Chastain.

Russell Sage Underwood has been appointed assistant to the general traffic manager of the Erie, with headquarters at New York. George R. Wheeler, division freight agent at New York, has been promoted to milk freight agent, with headquarters at New York, succeeding Frank E. Smith, who has been retired at his own request; and Asa B. Clark succeeds Mr. Wheeler.

Eugene Fox, whose appointment on January 1 as assistant general traffic manager of the El Paso & Southwestern System and the Morenci Southern Railway, with headquarters at Chicago, has already been announced in these columns, was born January 18, 1877, at Winterset, Iowa. He was educated in the public schools of Stuart, Iowa, and Hutchinson, Kan., until January, 1898, when he began railway work as bill clerk for the Chicago, Rock Island & Pacific at Hutchinson. He was subsequently weighmaster, ticket clerk, bill clerk and cashier in the freight department until September, 1899, when he was appointed traveling freight agent at Salt Lake City, Utah. In October, 1901, he was transferred to St. Louis, Mo., in a similar capacity and one year later he was made traveling freight agent, with headquarters at El Paso, Tex. He remained in that position until the absorption of the El Paso & Northeastern by the El Paso & Southwestern in June, 1905, when he was appointed general agent of the El Paso & Southwestern System at Los Angeles, Cal. He was transferred to Chicago in November, 1906, as general agent, and in June, 1909, was made assistant general freight agent at El Paso. He was promoted to general freight and passenger agent in December of that year, which position he held when he was appointed assistant general traffic manager, in charge of solicitation, with headquarters at Chicago, as above noted.

Eugene Fox

Engineering and Rolling Stock

D. C. Clough has been appointed master mechanic of the Oregon Electric and the United Railways, with office at Portland, Ore., succeeding G. H. Hopkins, resigned.

C. J. Chenworth, assistant engineer of the Atlantic Coast Line at Savannah, Ga., has been appointed engineer of roadway, with headquarters at Savannah, succeeding O. T. Waring, promoted.

J. C. Resch, division engineer of the Texas & Pacific at Big Springs, Tex., has been appointed assistant chief engineer of the International & Great Northern, with headquarters at Houston, Tex.

The office of master mechanic has been abolished on the Georgia Railroad, and the duties of that position have been assumed by F. O. Walsh, superintendent of motive power and equipment.

D. Rounseville, resident engineer of the Chicago & North Western at Pekin, Ill., has been appointed engineer of maintenance, lines east of the Missouri river, with headquarters at Chicago, in place of H. H. Decker, resigned.

Raymond V. Reamer, assistant supervisor of the Central of New Jersey at Jersey City, N. J., has been appointed engineer maintenance of way of the Central division and branches, with headquarters at Jersey City, succeeding C. H. Stein, promoted.

O. G. Hartman, who was until recently with the Chicago, Milwaukee & St. Paul at the Milwaukee, Wis., shops, has been appointed mechanical foreman of the Wisconsin & Michigan, with headquarters at Peshtigo, Wis., succeeding to the duties of C. H. Stroud, master mechanic, resigned.

L. B. Allen, assistant chief engineer of the Chesapeake & Ohio and the Chesapeake & Ohio of Indiana at Richmond, Va., having been transferred to other duties, the position of assistant chief engineer will remain vacant until further notice, and C. W. Johns, engineer maintenance of way, has been appointed engineer of branch lines, with office at Richmond, succeeding R. B. Burks.

W. S. Butler, master mechanic of the Chesapeake & Ohio and the Chesapeake & Ohio of Indiana at Hinton, W. Va., has been appointed master mechanic of the Huntington and Big Sandy divisions, with headquarters at Huntington, W. Va. G. W. Robertson, master mechanic of the Ashland division at Lexington, Ky., has been appointed master mechanic of the Hinton division, with headquarters at Hinton, and the jurisdiction of W. P. Hobson, master mechanic of the Cincinnati division, has been extended over the Ashland division, with headquarters at Covington, Ky.

H. Bortin, resigned as assistant engineer in charge of valuation of the Union Pacific and a member of its Valuation Committee on December 31, last. He has since been appointed assistant to Thomas W. Hulme, general secretary of the Presidents' Conference Committee, organized to consider matters in connection with the valuation of railroad property by the government. His headquarters are at Philadelphia, Pa. Prior to entering the service of the Union Pacific valuation work Mr. Bortin had been with the Isthmian Canal Commission in Panama for two and a half years, engaged on municipal engineering, on the hydraulics of the canal and in connection with the excavation work in Culebra.

E. B. Hall, who recently was appointed assistant to the general superintendent of motive power and car departments of the Chicago & North Western, with headquarters at Chicago, began railway work in July, 1889, with the Chicago & North Western, and has remained consecutively in the service of that road. Until August, 1892, he was machinist helper at Hawarden, Iowa, and then for six years was a fireman on the Northern Iowa and Western Iowa divisions. From October, 1898, to September, 1907, he was a locomotive engineer on the Sioux City division, and on the latter date was advanced to road foreman of engines of that division. He was master mechanic of the Northern Iowa and Sioux City divisions at Eagle Grove, Ia., from March, 1910, to May, 1912, when he was transferred to the Wisconsin division in a similar capacity, with headquarters at Chicago, which position he held at the time of his recent promotion to assistant to general superintendent of the motive power and car departments, as above noted.

Purchasing

E. O. Griffin, general storekeeper of the International & Great Northern, with office at Palestine, Tex., also has been appointed general fuel and supply agent.

R. L. Murphy has been appointed tie and timber agent of the Cincinnati, New Orleans & Texas Pacific and the Alabama Great Southern, with headquarters at Cincinnati, Ohio.

C. T. Tillman, treasurer and acting purchasing agent of the South Georgia, at Quitman, Ga., has been appointed purchasing agent with office at Quitman, and M. K. Northam, has been appointed industrial agent and assistant purchasing agent with office at Chicago.

OBITUARY

W. A. Fowkes, traveling agent of the Pacific Fruit Express, with headquarters at Chicago, died suddenly at his home in that city on January 15, aged 44 years.

Asa P. Blakslee, president and general manager of the Mauch Chunk Switchback Railway, died recently at his home in Mauch Chunk, Pa. Mr. Blakslee was born on November 13, 1854, at Mauch Chunk and began railway work in 1869, as telegraph messenger and ticket checker on the Lehigh Valley. From 1871 to 1873 he was waybill entry clerk, and later was made waybill examiner of the same road. He was the general freight and passenger agent of the Montrose Railway until it was absorbed by the Lehigh Valley. From February, 1878, to June, 1884, he was car accountant of the Lehigh Valley, and then became general car agent. He was in the real estate department of the same road from April, 1892, to January, 1899, and since March, 1899, had been successively superintendent, and president and general manager of the Mauch Chunk Switchback.

Equipment and Supplies

LOCOMOTIVE BUILDING

THE TENNESSEE CENTRAL is inquiring for 2 consolidation locomotives.

THE BUFFALO CREEK is inquiring for 3 six-wheel switching locomotives.

THE GEORGIA SOUTHERN & FLORIDA is in the market for 6 ten-wheel locomotives.

THE PENNSYLVANIA has ordered 34 Atlantic type locomotives from its Juniata shops.

THE BIRMINGHAM SOUTHERN is inquiring for 2 consolidation and 3 switching locomotives.

THE YUEH HAN has ordered 2 consolidation locomotives from the American Locomotive Company.

THE NEW ORLEANS & NORTHEASTERN is inquiring for 4 Pacific type and 6 mikado type locomotives.

THE CANADIAN PACIFIC is said to be inquiring for 70 locomotives. This item has not been confirmed.

THE FROST-JOHNSON LUMBER COMPANY, Campti, La., has ordered one mogul type locomotive from the Baldwin Locomotive Works.

THE WAKEFIELD IRON COMPANY, Wakefield, Mich., has ordered 2 six-wheel switching locomotives from the Baldwin Locomotive Works.

THE HOLLY SHELTER LAND COMPANY, Woodside, N. C., has ordered one prairie type locomotive from the Baldwin Locomotive Works.

THE DELAWARE & HUDSON, reported in the *Railway Age Gazette* of October 10, as being in the market for 10 locomotives, is now inquiring for from 10 to 15 Pacific type locomotives.

THE UNION FREIGHT RAILROAD has ordered one four-wheel saddle tank locomotive from the American Locomotive Company. This locomotive will have 12 x 15 in. cylinders, 43½ in. driving wheels, a total weight in working order of 93,000 lb., and steam pressure of 180 lb.

CAR BUILDING

THE MISSOURI PACIFIC is in the market for about 100 passenger cars.

THE ATLANTA & WEST POINT is in the market for 2 sixty-foot passenger coaches.

THE NORTHERN PACIFIC has ordered 40 express refrigerator cars from the Western Steel Car and Foundry Company.

THE CUBA COMPANY has ordered 350 freight and 12 passenger cars from the American Car and Foundry Company.

THE PENNSYLVANIA has ordered 1,000 50-ton steel frame box cars and 50 all-steel passenger coaches from its Juniata shops.

THE DENVER & RIO GRANDE is in the market for 10 combination passenger and baggage cars, 500 box cars, and from 500 to 1,000 gondola cars.

THE ILLINOIS CENTRAL has ordered 1,000 gondola cars from the American Car & Foundry Company. The same road is also figuring on 500 refrigerator cars.

THE ST. LOUIS SOUTHWESTERN has obtained permission from the Public Service Commission of the state of Missouri to issue $340,000 in notes for the purpose of purchasing 8 gas electric cars and 205 steel underframe freight cars.

THE UNION PACIFIC has ordered 5,000 steel underframes from the Bettendorf Company for the 5,000 freight cars ordered from the American Car & Foundry Company and the Pressed Steel Car Company, as reported in last week's issue.

THE CHESAPEAKE & OHIO has ordered 1,000 gondola cars for the Hocking Valley from the American Car & Foundry Company; 1,000 gondola cars for its own use from the Pressed Steel Car Company, and 1,000 hopper cars for its own use from the Standard Steel Car Company.

Supply Trade News

The Erie Foundry Company, Erie, Pa., has recently installed a 1,500 lb. single frame steam forging hammer in the Ashtabula steel car shops of the Lake Shore & Michigan Southern.

John F. Schurch, whose election to the vice-presidency of the Damascus Brake Beam Company, Cleveland, Ohio, has recently been announced, will be able to use the experience gained from railway work and work in the railway supply field as well. Mr. Schurch graduated from the University of Minnesota in 1893. He then immediately entered the service of the Minneapolis, St. Paul & Sault Ste. Marie, serving consecutively in the office of the auditor, that of the general superintendent and in the train and traffic departments, resigning finally in 1905, after having attained the position of chief clerk to the vice-president. He has since been engaged in commercial work in the railway supply business, and has been associated for some years with the Railway Materials Company of Chicago. Mr. Schurch, or to use the name by which he is best known, Jack Church, is well known in the supply trade field. At the present time he holds the position of chairman of the entertainment committee of the American Railway Supply Manufacturers' Association.

J. F. Schurch

Charles Henry Schlacks, whose appointment to the presidency of the Hale and Kilburn Company, Philadelphia, Pa., has recently been announced, comes to his new position with the experience of an enviable career in the railway field. Mr. Schlacks was born in Chicago on November 12, 1865. He entered railway service when he was but fourteen as an office boy on the Illinois Central. He then became a machinist's apprentice, and was consecutively to 1891, mechanical draftsman, chief clerk to the superintendent of machinery and chief clerk to the general superintendent. In November, 1891, he was appointed assistant to the general manager of the Denver & Rio Grande. On November 1, 1894, he became assistant general manager of that road and retained that position until July 1, 1900, when he was appointed also general manager of the Colorado Midland. On June 1, 1904, he became a vice-president of the Denver & Rio Grande. On November 5, 1909, he also became the first vice-president of the new Western Pacific, the western extension of the Denver & Rio Grande, removing his headquarters to San Francisco, Cal., and was an important factor in the work of getting

C. H. Schlacks

that road in complete and efficient working order. He was thus for a time the first vice-president of the Western Pacific, vice-president of the Denver & Rio Grande, the Colorado Midland, the Rio Grande Southern and the Utah Fuel Company, and president of the Globe Express Company.

J. H. Watters, who recently resigned from his position of master mechanic of the Georgia railroad in order to be better able to exploit his various locomotive appliances, will have headquarters at Oxford, Ala.

Graham Dedge, formerly chief clerk and accountant of the Wichita Terminal Association, Wichita, Kan., has been appointed assistant sales manager of the Edgar Steel Seal & Manufacturing Company, Chicago.

The Des Moines Bridge & Iron Company, Pittsburgh, Pa., and Des Moines, Iowa, on February 1, adopted the name Pittsburgh-Des Moines Steel Company. The general offices of the company have been moved to Pittsburgh. There will be no change in the management of the company.

The Chicago Railway Equipment Company held its twenty-first annual dinner at the Union League Club, Chicago, on February 3. Arthur Wyman, assistant to the president, presented President E. B. Leigh with a gold watch on behalf of the officers of the company. Addresses were made on various phases of the business of the company by Mr. Leigh and other officers. The table decorations were unique, for they consisted of models of the company's various plans.

The Duff Manufacturing Company, Pittsburgh, Pa., manufacturers of Barrett track and car jacks, Duff ball-bearing screw jacks and Duff-Bethlehem hydraulic jacks, has opened an office in the Peoples Gas Building, Chicago. The same company has recently appointed G. W. Parsons, district sales agent, with offices in the Pioneer Building at St. Paul, Minn. The company also announces that by mutual agreement the Fairbanks Morse Company has discontinued acting as exclusive steam railway agents for the Duff jacks.

TRADE PUBLICATIONS

Derails.—The Q. & C. Company, New York, has recently issued a circular describing the new Q. & C. $5 derail.

Steam Turbines.—The Terry Steam Turbine Company has recently issued a bulletin describing the Terry return flow steam turbine.

Hoists.—The Brown Hoisting Machinery Company, Cleveland, Ohio, has recently issued pamphlet *C* illustrating Brown hoist safety crabs and winches.

Frogs, Switches and Crossings.—The Weir Frog Company, Cincinnati, Ohio, has issued a new illustrated catalog, No. 9, of its line of frogs, switches, crossings and all kinds of special track work.

Delaware, Lackawanna & Western.—The passenger department has issued an attractive booklet illustrated with views and drawings of the Clarks Summit-Hallstead cut-off, as a souvenir of the inspection trip over the line on January 22 made by the American Society of Civil Engineers.

Locomotive Cranes.—The Industrial Works, Bay City, Mich., has issued an attractive new catalog, book No. 108, describing its locomotive cranes for construction, industrial and railroad purposes, together with various accessories, such as clam shell buckets, lifting magnets, special cars, booms and attachments. A large number of excellent halftone illustrations are used and the book contains a large amount of miscellaneous information.

Rail Reports.—The Titanium Alloy Manufacturing Company has just issued bulletin No. 4 of its series of rail reports. This last bulletin gives the comparisons between Titanium-treated open-hearth, standard open-hearth and electric process rails published in bulletin 157 of the American Railway Engineering Association, issued in July, 1913. Tests on the Boston & Maine, Delaware, Lackawanna & Western, Rock Island Lines, Lehigh Valley and Delaware & Hudson, are given. This bulletin contains a number of sulphur prints and photographs of etched sections of treated and untreated rails, and is prepared in the same high class manner characterizing previous bulletins.

Railway Construction

Atlantic Coast Line.—According to press reports contracts for second track work between Selma, N. C., and Parkton, 62 miles, have been let to the following contractors: W. Z. Williams & Co., Macon, Ga., sections 1 and 2; C. W. Lane & Co., Atlanta, section 3; J. L. Shehan, Elkton, Tenn., section 4, and A. & C. Wright, Elkton, Tenn., section 5. This work is to be started at once. (November 28, p. 1047.)

Badger Railway & Light Company.—This company, with headquarters at Milwaukee, Wis., was organized to build a line in Wisconsin to connect Jefferson, Whitewater, Elkhorn and Lake Geneva. A contract has recently been given to the Raulf Company, it is said, to build from Lake Geneva northwest to Jefferson, about 35 miles. The company plans to use gas-electric cars on the line. H. B. Kamschulte, president and general manager, Milwaukee.

Barclay & Riverton.—We are told that contracts are to be let in from 60 to 90 days to build from Barclay, Ill., south to Riverton. John H. Bontjes, Peoria, may be addressed. (September 5, p. 700.)

Canadian Roads.—Bids are wanted until February 11, by the commissioners, Greater Winnipeg Water District, 901 Boyce building, Winnipeg, Man., for grading work and track laying on about 85 miles of railway. The line is to be built from a point on the Grand Trunk Pacific to Indian Bay, and is a part of improvements being carried out to provide a water supply for the city of Winnipeg from Shoal Lake. S. H. Reynolds, chairman of commissioners, Winnipeg, Manitoba. (October 17, p. 726.)

Coleta Railroad.—Organized in Illinois, it is said, to build an 8-mile line to Agnew. F. Hummerman, president, Coleta, Ill.

Dallas Northwestern Traction.—This company, which was organized last year, has been granted a charter in Texas, with a capital of $500,000 and headquarters at Dallas. The company plans to build from Dallas northwest to Wichita Falls, about 120 miles. Surveys have been made on the section from Dallas via Denton to Krum. The incorporators include E. P. Turner, B. B. Cain, L. S. Thorne and J. T. Witt. (July 25, p. 169.)

Dan River (Electric).—This company, which was organized last year in North Carolina with $500,000 capital, has since been incorporated, and it is understood will shortly begin construction work on a section of about 30 miles between King, N. C., and Asbury. H. Miller and E. T. Knapp, Bethania, are incorporators. (December 26, p. 1249.)

Frost-Johnson Lumber Company's Line.—According to press reports this company has finished work on a 10-mile line from Mansfield, La., east to Naborton in De Sota county.

Interstate Railroad.—This company, which operates a line from Stonega, Va., to Norton, 16 miles, also a line from Norton to Glamorgan, an additional 6 miles, together with a number of short branch lines, is planning to build an extension, it is said, from Norton into the Elkhorn and Boone's creek coal and timber districts of Kentucky, about 25 miles.

Kettle Valley.—According to press reports this company will apply for permission to build a line from Otter Summit, B. C., to Asten Grove. At the present time it is proposed to build a spur into Princeton, but trackage rights may be secured over the Great Northern to that place.

Mobile & Baldwin County (Electric).—A contract has been given to J. M. Gillis, Brewton, Ala., it is said, for work on 10 miles of line south of Fairhope, Ala. The company started work last year on a line from Mobile, Ala., via Bay Minette, and Fairhope to Pensacola, Fla. W. B. Miller, president, Chicago; M. H. Miller, vice-president and general manager, Mobile, Ala. (July 4, 1913, p. 37.)

Northern Pacific.—The report of this company for the year ending June 30, 1913, shows that a branch line has been built from the present main line in Newton avenue, Superior,

Wis., to Superior bay near the mouth of Nemadji river, 1.8 miles, to serve an ore dock; the Cuyuna Northern built 5.16 miles in Minnesota north of the main line of the Northern Pacific, and work was carried out by the Minnesota & International on a change of line from Leaks to Brainard, 5.8 miles. Improvements are under way to reduce the grades and curvature between Twin Valley and Heidberg on 3.04 miles, and the distance will be reduced 2,204 ft. Grading work on the Western Dakota from Stanton, N. Dak., west for 62 miles, is in progress, and will be completed this year. In November, 1912, work was finished on 4.85 miles of second main track between Bloom and Jamestown. Minor grade revisions have been completed between Moab, Wash., and Trent on 2.93 miles; also the work of revising the grade and raising the bridges between Weston and Maywood. Second main track was laid, and line and grade changes were made between Tenino and Vancouver. A change of line was also completed on 0.9 miles of the Wilkeson branch. The Spokane grade separation work which was started in January, 1913, under contract, was entirely shut down and the contract canceled in April of that year, owing to injunction suits. Work is under way on the construction of a second track, including line changes, over the Cascade mountains between Easton, Wash., and Lester, on about 15 miles. Grading is well advanced toward completion on the Point Defiance line between Tacoma and Tenino; the excavation of the 4,380-ft. tunnel is finished, and the tunnel is completely lined for 2,810 ft. Grading work and track laying are in progress on the Interbay, Ballard (suburb of Seattle) change of line and grade, and the foundation for the piers of the bascule bridge across the Salmon bay waterway has been completed. Work on the Lake Union Line at Seattle, 2.38 miles, also on an extension of 0.53 miles, was finished during the year, and various line changes and grade revisions are in progress on the line north of Seattle, at and near the crossing of Pilchuck river, at and near Thornwood Hill, Sedro Woolley to Wickersham and around McMurray lake, and McMurray to Montborne. There is also to be a 3.8 mile line built between Edgecomb and Kruse's spur on the Great Northern, to provide a new route over the tracks of the Great Northern between the latter place and Delta, where a connection will be made with the Everett branch of the Northern Pacific, thus allowing the heavy grades on the existing Northern Pacific line between Snohomish and Edgecomb to be avoided.

UNION TRACTION COMPANY.—An officer writes that this company expects to build a line connecting Coffeyville, Kan., with Nowata, Okla., 23 miles. The company is not building a branch from Deering, Kan., to Caney, as was recently reported. (January 23, p. 210.)

WHEELING & EASTERN.—Incorporated in West Virginia, it is said, with $100,000 capital, to build from Short Creek in Brooke county, W. Va., to a point near Potomac creek in Ohio county. The incorporators include G. A. Seeny, R. T. Manning and D. J. Smith, Wheeling.

RAILWAY STRUCTURES

JACKSONVILLE, FLA.—An officer of the Jacksonville Terminal Company writes that the Railroad Commission for the state of Florida has ordered a new station built at Jacksonville. The plans for the construction of the station are not yet completed, and the site has not yet been decided upon. J. C. Blanton, manager, Jacksonville.

MUSKOGEE, OKLA.—Work is to be started immediately on the construction of the new machine shops of the Missouri, Oklahoma & Gulf, to replace the shops destroyed by fire several months ago.

TRENTON, N. J.—The Pennsylvania Railroad has given a contract to Arthur McMullan, New York, for the masonry substructure for a bridge to be built over the Delaware river below Trenton. This structure will consist of a swing draw span providing two 130-ft. channel openings and a clearance of 55 ft. above water. There will also be a truss span on each side of the swing span and a steel viaduct approach on the east side. This structure is a part of the low-grade freight line. (January 16, p. 150.)

Railway Financial News

BOSTON & MAINE.—It is understood that about 98 per cent. of the holders of the $10,000,000 notes which matured January 2, agreed to an extension of these notes to June 2. Announcement was made that no cash had been deposited by the company, on advice of counsel, with J. P. Morgan & Company.

CHICAGO, MILWAUKEE & ST. PAUL.—Kuhn, Loeb & Company and the National City Bank, both of New York, have bought from the company and resold to the public $9,741,000 general mortgage 4½ per cent. bonds. They were sold to the public at 103¼. In April, 1913, the St. Paul sold $30,000,000 general mortgage 4½ per cent. bonds to Kuhn, Loeb & Company, and the offering price to the public was 99½. At that time the bonds were not particularly eagerly subscribed for. It is understood that the present issue was sold before noon of the offering day.

CHICAGO, ROCK ISLAND & PACIFIC.—Stockholders have voted to ratify the lease of the Rock Island, Stuttgart & Southern. (December 12, 1913, p. 1148.)

HOCKING VALLEY.—This company has sold through Kuhn, Loeb & Company, New York, $800,000 4½ per cent. equipment trust certificates secured by 1,000 coal cars recently ordered. It is understood that the certificates have already been sold privately by the bankers.

KANSAS CITY, MEXICO & ORIENT.—Judge Pollock, in the federal court of Kansas City, has set June 1 as the day for the sale of the K. C. M. & O. at an upset price of $6,000,000, provided, however, that this price is paid by the bondholders' reorganization committee. The upset price to any other bidder will be between ten and twelve million dollars. The property of the Kansas City Outer Belt and of the two construction companies—the Union and the International—which built the K. C. M. & O., will be sold later.

LOUISVILLE & NASHVILLE.—J. P. Morgan & Company, the First National Bank and the National City Bank, all of New York, have bought from the company and resold to the public $7,400,000 South & North Alabama general consolidated mortgage 5 per cent. bonds of October 1, 1913-1963. The bonds are guaranteed principal and interest by the Louisville & Nashville. The offering price to the public was 104¾, yielding about 4¾ per cent. interest on the investment. The proceeds of $4,800,000 of the bonds are to be used toward the payment for grade reduction and double track work; $1,400,000 for equipment, and $1,920,000 for refunding an equal amount of second mortgage bonds of the Louisville & Nashville.

MICHIGAN CENTRAL.—White, Weld & Company, New York, have bought from the company and are offering to the public $1,550,000 Detroit Terminal & Tunnel Company first mortgage 4½ per cent. bonds of the Detroit River Tunnel Company, guaranteed principal and interest by the Michigan Central. These are part of an authorized issue of $30,000,000, of which $16,000,000, including the bonds now offered, are outstanding. The bonds are secured by a first mortgage on the passenger and freight terminals in Detroit used by the Michigan Central, and on the double tube tunnel under the Detroit river, 2.42 miles long. The offering price to the public was 96¼, yielding about 4.70 per cent. interest on the investment.

ROCK ISLAND, STUTTGART & SOUTHERN.—See Chicago, Rock Island & Pacific.

VIRGINIAN.—Samuel McRoberts and Charles W. Hotchkiss have been elected directors, succeeding Samuel Sloane and F. C. Uhlman.

WABASH.—The final decree of foreclosure has been signed, the upset price being fixed at $34,000,000 and a cash deposit of $1,700,000 being required.

[ADVERTISEMENT.]

ANNUAL REPORT.

SEVENTEENTH ANNUAL REPORT OF THE NORTHERN PACIFIC RAILWAY COMPANY

OFFICE OF THE
NORTHERN PACIFIC RAILWAY COMPANY,
34 NASSAU STREET, NEW YORK,
September 15, 1913.

To the Stockholders of the
NORTHERN PACIFIC RAILWAY COMPANY.

The following, being the Seventeenth Annual Report, shows the result of the operation of your property for the fiscal year ending June 30, 1913.

INCOME ACCOUNT.

	1912	1913	*Increase or Decrease*
REVENUE FROM TRANSPORTATION:			
Freight	$43,793,521.58	$52,270,685.94	$8,477,164.36
Passenger	15,343,752.05	15,808,035.75	464,283.70
Other revenue from transportation	3,357,864.67	3,546,575.88	188,711.21
Totals	$62,495,138.30	$71,625,297.57	$9,130,159.27
REVENUE FROM OPERATION other than transportation	$928,808.32	$1,050,841.15	$122,032.83
Total operating revenue	$63,423,946.62	$72,676,138.72	$9,252,192.10
Per mile (average)	$10,526.64	$11,609.88	$1,083.24
OPERATING EXPENSES:			
Maintenance of way and structures	$7,861,490.57	$10,188,053.94	$2,326,563.37
Maintenance of equipment	7,207,716.49	8,532,671.74	1,324,955.25
Traffic expenses	1,202,292.65	1,309,800.81	107,508.16
Transportation expenses	20,756,386.75	23,569,379.23	2,812,992.48
General expenses	1,130,630.56	1,073,392.43	— 57,238.13
Totals	$38,158,517.02	$44,673,298.15	$6,514,781.13
Per mile (average)	$6,333.27	$7,136.48	$803.21
Net operating revenue	$25,265,429.60	$28,002,840.57	$2,737,410.97
Per mile (average)	$4,193.37	$4,473.40	$280.03
OUTSIDE OPERATIONS:			
Sleeping, parlor, observation, dining and cafe cars and restaurants	$312,750.94	$308,820.28	— $3,930.66
Total net revenue	$25,578,180.54	$28,311,660.85	$2,733,480.31
TAXES ACCRUED:	$3,739,079.37	$3,999,028.08	$259,948.71
Per mile (average)	$620.58	$638.84	$18.26
Operating income	$21,839,101.17	$24,312,632.77	$2,473,531.60
OTHER INCOME:			
Dividends and interest on securities, interest on deposits and miscellaneous	$2,299,856.67	$2,077,682.81	— $222,173.86
Rentals received	2,116,171.16	2,232,902.32	116,731.16
Hire of equipment	615,815.58	315,288.14	— 300,527.44
Gross income	$26,870,944.58	$28,938,506.04	$2,067,561.46
DEDUCT:			
Rentals paid	$526,319.96	$537,303.22	$10,983.26
Interest on funded debt	6,680,810.00	6,837,685.00	156,875.00
Dividends on stock	17,360,000.00	17,360,000.00	.....
Totals	$24,567,129.96	$24,734,988.22	$167,858.26
Surplus	$2,303,814.62	$4,203,517.82	$1,899,703.20
Less amount appropriated to cover sundry claims	.....	$750,000.00	$750,000.00
Net surplus for the year	$2,303,814.62	$3,453,517.82	$1,149,703.20
Ratio of operating expenses to total operating revenue	60.16%	61.47%	1.31%
Ratio of taxes to total operating revenue	5.90%	5.50%	— .40%

MILEAGE OPERATED.

Changes have taken place in the mileage operated during the year as follows:

There were added:

		Miles
Aug. 1, 1912.	Wilton Branch in North Dakota, completed	92.40
Aug. 1, 1912.	Mandan North Branch in North Dakota, completed	52.64
Aug. 1, 1912.	Glendive East Branch in Montana, completed	54.81
Dec. 15, 1912.	Midland Railway of Manitoba, leased	73.70
Dec. 29, 1912.	Cuyuna Northern Railway in Minnesota, constructed	8.88
Dec. 31, 1912.	Wilkeson Branch in Washington, line change	.46
	Total additions	282.89
Deductions:		
Jan. 1, 1913.	Palouse & Lewiston Branch in Washington, track transferred to sidings	.19
June 30, 1913.	Boulder Branch in Montana, track taken up	1.61
June 30, 1913.	Corrections in rechaining	.34
	Total deductions	2.14
	Net additions	280.75
	Mileage operated June 30th, 1912	6,031.79
	Mileage operated June 30th, 1913	6,312.54
	Average mileage operated during the year	6,259.85

EARNINGS.

FREIGHT BUSINESS.

Freight revenue was $52,270,685.94, an increase of $8,477,164.36 or 19 36 per cent over the previous year.

6,232,168,637 tons of revenue freight were moved one mile, an increase of 1,180,987,156 tons one mile, or 23.38 per cent over the previous year.

The rate per ton mile decreased from .00867 to .00839.

The revenue train load increased from 510.54 to 541.62 tons. The total train load, including company freight, increased from 593.78 to 637.11 tons.

The number of miles run by revenue freight trains was 10,794,507, an increase of 1,497,966 or 16.11 per cent.

PASSENGER BUSINESS.

Passenger revenue was $15,808,035.75, an increase of $464,283.70 or 3.03 per cent over the previous year.

Mail revenue was $984,547.79, an increase of $3,019.46 or .31 per cent.

Express revenue was $1,355,618.15, an increase of $72,265.76 or 5.63 per cent.

Excess baggage and miscellaneous passenger revenue was $334,050.92, an increase of $52,440.04 or 18.62 per cent.

Total revenue for persons and property carried on passenger trains was $18,482,252.61, an increase of $592,008.96 or 3.31 per cent over the previous year.

The number of passengers carried was 9,113,157, an increase of 451,512 over the previous year, and the number of passengers carried one mile was 661,517,397, an increase of 12,009,214 or 1.85 per cent.

The number of miles run by revenue passenger trains was 11,508,781, an increase of 153,317 or 1.35 per cent.

The rate per passenger per mile was .02390 and .02362 last year.

PASSENGER AND FREIGHT STATISTICS.

	1911-12. *Miles, Tons, etc.*	1911-12. *Amount, Rate, etc.*	1912-1913. *Miles, Tons, etc.*	1912-1913. *Amount, Rate, etc.*	*Increase.*	*Per Cent. Increase.*	*Decrease.*
Average mileage for the year	6,025.09	.....	6,259.85	.....	234.76	....	....
PASSENGER TRAFFIC.							
Number of passengers carried	8,661,645	.....	9,113,157	.....	451,512	5.21	....
Number of passengers carried one mile	649,508,183	.....	661,517,397	.....	12,009,214	1.85	....
Average miles traveled by each passenger	75.0	.....	72.6	.....	.....	3.29	2.4
Passenger revenue	.....	$15,343,752.05	.....	$15,808,035.75	$464,283.70	3.03	....
Other passenger train revenue	.....	2,546,491.60	.....	2,674,216.86	127,725.26	5.02	....
Total passenger train revenue	.....	17,890,243.65	.....	18,482,252.61	592,008.96	3.31	....
Average amount paid by each passenger	.....	$1.77	.....	$1.73	.....	2.26	.04
Average rate per passenger per mile	.....	.02362	.....	.02390	.00028	1.19	....
Passenger train revenue per mile of road (average mileage)	.....	$2,969.29	.....	$2,952.51	.....	.57	$16.78
FREIGHT TRAFFIC.							
Number of tons revenue freight carried	17,455,975	.....	21,285,527	.....	3,829,552	21.94	....
Number of tons revenue freight carried one mile	5,051,181,481	.....	6,232,168,637	.....	1,180,987,156	23.38	....
Average distance haul of one ton	289.4	.....	292.8	.....	3.4	1.17	....
Freight revenue	.....	$43,793,521.58	.....	$52,270,685.94	$8,477,164.36	19.36	....
Other freight train revenue	.....	1,029,418.46	.....	1,118,042.04	88,623.58	8.61	....
Total freight train revenue	.....	44,822,940.04	.....	53,388,727.98	8,565,787.94	19.11	....
Average receipts from each ton of freight	.....	$2.51	.....	$2.46	.....	1.99	.05
Average receipts per ton per mile revenue freight	.....	.00867	.....	.00839	.....	3.23	.00028
Freight train revenue per mile of road (average mileage)	.....	$7,439.38	.....	$8,528.76	$1,089.38	14.64	....
TOTAL TRAIN TRAFFIC.							
Revenue from freight and passenger trains	.....	$62,713,183.69	.....	$71,870,980.59	$9,157,796.90	14.60	....
Revenue per mile of road (average mileage)	.....	10,408,67	.....	11,481.27	1,072.60	10.30	....
Revenue per train mile	.....	$2.95	.....	$3.12	.17	5.76	....
Expenses per train mile	.....	1.79	.....	1.94	.15	8.38	....
Net traffic revenue per train mile	.....	1.16	.....	1.18	.02	1.72	....

TRAIN AND CAR MILEAGE STATISTICS.

	1911-1912. Miles, Tons, Etc.	1912-1913. Miles, Tons, Etc.	Increase.	Per Cent.	Decrease.
Mileage of revenue passenger trains	11,355,464	11,508,781	153,317	1.35	.....
Mileage of locomotives employed in "helping" passenger trains	614,302	619,328	5,026	.82	.....
Percentage of "helping" to revenue train mileage	5.41%	5.38%	.....	.....	.03%
Mileage of revenue mixed trains	597,324	712,052	114,728	19.21	.....
Mileage of revenue freight trains	9,296,541	10,794,507	1,497,966	16.11	.....
Mileage of locomotives employed in "helping" mixed and freight trains	1,122,781	1,369,133	246,352	21.94	.....
Percentage of "helping" to revenue train mileage	11.35%	12.68%	1.33%	.....	.....
Mileage of revenue special trains	21,056	14,524	.....	31.02	6,532
Total revenue train mileage	21,270,385	23,029,864	1,759,479	8.27	.....
Mileage of non-revenue trains	1,318,381	1,496,400	178,019	13.50	.....
Mileage of passenger train cars	72,641,280	74,740,345	2,099,065	2.89	.....
Average number of passenger train cars in train	6.08	6.12	.04	.66	.....
Average number of passengers in train	54.34	54.13	.....	.39	.21
Average number of passengers in each car	14.02	13.92	.....	.71	.10
Mileage of loaded freight cars	266,588,712	315,638,562	49,049,850	18.40	.....
Mileage of empty freight cars	77,140,586	110,583,636	33,443,050	43.35	.....
Mileage of caboose cars	9,240,248	11,014,006	1,773,758	19.20	.....
Total mileage of revenue freight cars	352,969,546	437,236,204	84,266,658	23.87	.....
Special service car mileage—freight	261,728	213,580	.....	18.40	48,148
Special service car mileage—passenger	98,701	66,761	.....	32.36	31,940
Total special service car mileage	360,429	280,341	.....	22.22	80,088
Non-revenue service car mileage	6,411,428	8,231,020	1,819,592	28.38	.....
Average number of loaded freight cars in train	26.94	27.43	.49	1.82	.....
Average number of empty freight cars in train	7.80	9.61	1.81	23.21	.....
Average number of freight cars in train (exclusive of cabooses)	34.74	37.04	2.30	6.62	.....
Percentage of empty cars to total cars in train (exclusive of cabooses)	22.45%	25.95%	3.50%	.....	.....
Average number of tons revenue freight in train	510.54	541.62	31.08	6.09	.....
Average number of tons revenue freight in each loaded car	18.95	19.74	.79	4.17	.....
Company freight—tons carried	4,217,573	5,091,889	874,316	20.73	.....
Company freight—tons carried one mile	823,643,269	1,098,796,318	275,153,049	33.41	.....
Tons per train—company and commercial	593.78	637.11	43.33	7.30	.....
Tons per loaded car—company and commercial	22.04	23.23	1.19	5.40	.....

OPERATING EXPENSES.

CONDUCTING TRANSPORTATION.

The charges for transportation expenses were $23,569,379.23, an increase of $2,812,992.48, or 13.55 per cent as against an increase in total operating revenue of 14.31 per cent.

MAINTENANCE OF EQUIPMENT.

The charges for maintenance of equipment were $8,532,671.74, an increase of $1,324,955.25, or 18.38 per cent. The increase is largely accounted for by the increased volume of traffic, and to a lesser extent, by the improved condition of the equipment as shown by the fact that 82.80% of the locomotives were in good condition at the end of the year, as compared with 78.44% the previous year; 891 passenger cars were not due in shops for two months as compared with 837 cars the previous year, and 3.31% of the freight equipment was in need of repairs of $5.00 or over per car as compared with 3.90% at the end of the previous year.

LOCOMOTIVES.

Total number of locomotives on active list June 30, 1912		1,416
To which have been added:		
W3 Mikado Engines	50	
Z3 Mallet Engines	10	
L10 Switch Engines	10	
Returned to active list from 17 engines held for sale	6	76
Total		1,492
From which should be deducted:		
Engines withdrawn from service during year		126
Total on active list June 30, 1913		1,366
In addition to the engines on active list there were on hand from previous year:		
Held for sale	11	
Withdrawn as above	126	
	137	
Less sold and dismantled	14	
Leaving on hand engines withdrawn from service of which a considerable number may be sold.		123

HAULING CAPACITY.

Active List.	Number.	Tractive Power. (Pounds.)	Total Weight on Drivers. (Pounds.)	Total Weight of Engines. (Pounds.)
Assignment June 30, 1912	1,416	43,899,900	198,189,788	251,417,598
Added during fiscal year*	...	15,200	86,700	*175,000*
Purchased	70	4,062,000	17,546,000	22,104,000
Returned to active list	6	81,500	315,750	498,050
Total	1,492	48,058,600	216,138,238	273,844,648
Sold, dismantled and permanently retired	126	2,370,900	11,073,065	13,240,540
Total	1,366	45,687,700	205,065,173	260,604,108

* Account compound engines changed to simple.

Condition.	Number.	Per Cent.
Good	1,131	82.80
Fair	137	10.03
At shops	98	7.17
	1,366	100.00
Number of oil burning locomotives	47	3.44
Number of locomotives equipped with superheaters	189	13.91

PASSENGER EQUIPMENT.

On June 30, 1913, the company owned 1,162 passenger train cars, including 130 sleeping cars owned jointly with the Pullman Company, a net increase of 1 car. The number and kind of cars owned is shown in table on page 43.

Of the 1,162 cars owned 891 cars were not due in shops for two months or more.

FREIGHT EQUIPMENT.

Comparative number and capacity of freight cars:

	1912. Number.	1912. Capacity. (Tons of 2000 lbs.)	1913. Number.	1913. Capacity. (Tons of 2000 lbs.)	Increase or Decrease. Number.	Increase or Decrease. Capacity. (Tons of 2000 lbs.)
Box	23,846	873,685	24,957	929,365	1,111	55,680
Furniture	565	17,900	817	28,650	252	10,750
Refrigerator	1,553	41,125	3,462	108,365	1,909	67,240
Stock	2,562	57,715	2,490	56,125	*72*	*1,590*
Flat	8,230	284,700	8,396	293,225	166	8,525
Oil	17	455	76	2,935	59	2,480
Coal	5,651	251,610	5,745	266,415	94	14,805
Ballast and Ore	796	31,840	1,045	43,505	249	11,665
Totals	43,220	1,559,030	46,988	1,728,585	3,768	169,555
Percentage	.....	.....	.....	.....	8.72%	10.88%
Average capacity per car	.....	36.1	.....	36.8	.....	.....

NOTE.—Figures in italics denote decrease.

Of the total number of freight cars on the road on June 30, 1913, only 1,558 or 3.31% were in need of repairs costing $5.00 or more per car.

In addition to equipment shown as on hand June 30, 1913, the following have been authorized and will be purchased or built at the Company's shops during the current year.

PASSENGER TRAIN CARS.		
Postal cars		12
FREIGHT TRAIN CARS.		
Box cars—40 ton capacity	2,143	
Refrigerator cars—35 ton capacity	651	
Stock cars—40 ton capacity	250	
Flat cars—35 ton capacity	557	
Cabooses	18	
		3,619
Total		3,631

The following statement shows the character and condition of the locomotives of the Company on June 30, 1913.

Wheel Arrangement.	Owned June 30, 1912.	Sold or Permanently Withdrawn from Service.	Added.	Owned June 30, 1913.	Average Weight of Locomotive without tender Tons of 2000 lbs. Total.	Average Weight of Locomotive without tender Tons of 2000 lbs. On Drivers.	Average Tractive Force—Lbs.
0-0 ◺	2	...	....	2	24.37	22.75	8,100
0-0-0 ◺	195	33	10	172	66.68	66.68	28,241
0-0-0-0 ◺	9	...	5*	14	71.76	71.76	26,264
0-0-0 ◺	138	32	....	106	54.37	45.15	18,373
0-0-0-0 ◺	142	21*	....	121	88.56	79.09	37,945
0-0-0-0-0 ◺	2	...	....	2	72.51	65.27	34,800
0-0-0 ◺	103	42	....	61	46.54	29.73	14,320
0-0-0-0 ◺	289	10	....	279	80.38	60.32	30,019
0-0-0-0 ◺	4	....	....	4	93.00	75.00	38,500
0-0-0-0 ◺	6	....	....	6	84.39	43.85	21,483†
0-0-0-0 ◺	142	....	....	142	112.76	71.34	31,517
0-0-0-0 ◺	150	....	....	150	102.25	76.75	33,300
0-0-0-0-0 ◺	220	....	50	270	135.52	105.26	48,387
0-0-0-0-0-0 ◺	22	....	....	22	170.70	150.72	64,936
0-0-0-0-0-0-0 ◺	5	....	10	15	225.80	200.73	89,500
Geared Locomotives	4	4	....	....	....	....	....
Total	1,433‡	142	75	1,366	95.39	75.06	33,446
Previous Year	...	...	...	...	88.22	65.98	30,791

* Changed from road to switch engines.—5.

† Tractive power changed account of steam pressure and diameter of cylinders being changed on two engines.

‡ Includes 17 locomotives held for sale.

DEPRECIATION OF EQUIPMENT.

In accordance with the rules of the Interstate Commerce Commission the following amounts have been charged to operating expenses on account of estimated depreciation of equipment, viz.:

Locomotives	$383,436.65	
Passenger cars	94,805.56	
Freight cars	652,175.08	
Work cars	23,747.96	
Floating equipment	2,044.26	
		$1,156,209.51

MAINTENANCE OF WAY AND STRUCTURES.

The charges for Maintenance of Way and Structures were $10,188,053.94, an increase of $2,326,563.37, or 29.59 per cent.

An analysis of the detailed statements of the principal items of work done which follows, and the table showing the distribution of the items of expense which appears in the Comptroller's report on page 32, will show that in addition to the increased maintenance incident to the operation of 234.76 more miles of road a large part of the increase results from relaying 594.94 miles with heavier rail as compared with 278.77 miles relaid in the previous year and a large increase in the number of sidings and spurs constructed to care for the increasing volume of traffic. The roadbed and structures are in first-class condition, notwithstanding the heavier traffic and the heavier motive power used in general on the system.

The following statements give particulars of the work done and show that the property has been well maintained.

PERMANENT WAY.

		1912	1913
New second track laid with 85 pound rail	miles	15.79	.....
New second track laid with 90 pound rail	"	29.40	9.67
New third track laid with 72 pound rail	"	1.06	.....
New branch lines laid with 72 pound rail	"	15.15	199.85
New branch lines laid with 56, 60 and 70 pound rail	"	2.74	12.08
Main line relaid with 100 pound rail	"	.....	47.23
Main line relaid with 90 pound rail	"	102.38	388.96
Main line relaid with 85 pound rail	"	2.92	.....
Main line relaid with 66, 72 and 85 pound rail	"	6.89	6.05
Second track relaid with 90 pound rail	"	2.00	4.42
Branch lines relaid with 90 pound rail	"	.....	51.54
Branch lines relaid with 66, 72 and 85 pound rail	"	164.58	96.74
Sidings and spurs constructed	"	40.79	115.63
Track ballasted	"	457.49	304.82
Embankment widened	"	130.03	79.30
Cross tie renewals, main line	Ties	1,845,781	2,103,476
Cross tie renewals, branch lines	"	1,034,312	1,021,332
Timber bridges replaced by permanent structures and embankments, 55 in number, equal to	miles	3.89	3.17
Timber bridges renewed		111	84
Timber culverts replaced		119	106
New stock fence constructed	miles	102.62	76.23
New snow fence constructed	"	10.82	4.30

RAIL IN MAIN, SECOND, AND THIRD TRACKS.

	Miles. 1912	1913
100 pound steel	.....	47.23
90 pound steel	1,236.78	1,691.82
85 pound steel	1,943.32	1,563.03
80 pound steel	2.26	2.26
76 pound steel	5.14	5.14
72 pound steel	901.68	1,155.01
70 pound steel	41.02	43.86
66 and 67 pound steel	607.93	589.67
60 pound steel	207.42	209.35
56 pound steel	1,549.69	1,407.71
Other weights	11.10	11.10
	6,506.34	6,726.18

BRIDGES.

During the year 144 bridges were replaced of which 84 bridges 15,945 feet in length were replaced by timber structures, and 5 permanent and 55 timber structures were replaced in permanent form, as follows:

Replaced by embankment	41 bridges,	14,670 lineal feet.
Replaced by truss, girder, I-beam and reinforced concrete trestle	19 bridges,	2,781 lineal feet.
Total	60 bridges,	17,451 lineal feet.

In addition to the changes referred to above, 4 permanent and 36 temporary bridges were abandoned by line changes, and 8 permanent and 158 temporary structures were added on new lines.

106 timber culverts were rebuilt, 15 in temporary and 91 in permanent form.

There are now under construction on operated lines 1,436 lineal feet of steel girder and I-Beam spans single track, 100 lineal feet of steel girder double track, 1,350 lineal feet of single track and 535 lineal feet of double track trusses, one 256 foot double track drawbridge, 272 lineal feet of reinforced concrete trestle, one steel highway bridge 738 feet long, one steel and concrete highway bridge 930 feet long, and 1,006 lineal feet of concrete subway.

BRIDGES AS THEY EXISTED JUNE 30, 1913.

	No.	Aggregate Length. Lineal Feet.	Miles.
Steel, iron, stone and concrete permanent bridges	620	106,059	20.08
Timber and combination iron and timber structures	2,805	425,970	80.68
Total	3,425	532,029	100.76

Total length of timber structures replaced by steel bridges, embankment, or in other permanent form, from July 1st, 1885, when work was commenced, to June 30th, 1913, has been 127.33 miles.

BLOCK SIGNALS.

Block signals have been installed and placed in service at the following points:

Minnesota.	*Idaho.*	*Washington.*
St. Cloud-Rice's	Sand Point-Athol	Tenino-Kalama
	Hauser-Spokane	Spokane-Cheney

In addition to the above, installations of automatic block signals are now in progress on—Lake Superior Division between St. Paul and Duluth and Carlton and Superior—Montana Division between Huntley and Billings—Pasco Division between Sunnyside Junction and Ellensberg—Seattle Division between Ellensberg and Cle-Elum and Lester and Auburn.

On June 30, on 2,485 miles of important main line there were 565.40 miles protected by automatic block signals and 707.90 miles protected by manual block.

INTERLOCKING PLANTS.

Interlocking plants are being installed on draw-bridges at Grassy Point, Pasco, Sand Point, Aberdeen and Hoquiam, and in the yards at Staples, Minnesota, and Marshall, Washington.

DOCKS AND WHARVES.

Seattle, Washington, foundation piles under Pier No. 5 are being renewed.

CHARGES TO CAPITAL ACCOUNT.

Upon requisition of the Executive Officers, approved by the Board of Directors, expenditures have been made during the past fiscal year for:

REAL ESTATE, RIGHT OF WAY AND TERMINALS:		
At Superior, Wisconsin, real estate	$647.89	
Minneapolis, Minnesota, real estate	48,179.69	
St. Paul, Minnesota, real estate	12,517.24	
Balance of charges account of sundry new yards and facilities	495.18	
		$61,840.00
BRANCHES, LINE CHANGES, GRADE REVISIONS AND SECOND MAIN TRACK:		
Superior, Wisconsin, track to ore dock (construction)	$217,328.02	
Edgeley, Missouri River Line, North Dakota (right of way)	62,446.59	
Pingree West Line, North Dakota (construction)	132,878.06	
Lake Basin Branch, Montana (surveys and right of way)	24,782.25	
Spokane, Washington, grade separation (construction)	279,693.19	
Point Defiance Line, Tacoma to Tenino, Washington (construction)	2,769,489.19	
Edgecomb to Kruse, Washington (construction)	14,127.87	
Gray's Harbor & Columbia River Railway, Washington (right of way)	7,134.06	
Ocosta Branch Extension, Washington (construction)	3,999.78	
Rights of Way at Seattle, Washington, for change of line and new tracks	116,441.29	
Sundry surveys and expenses	9,449.81	
St. Cloud to Rice's, Minnesota, second main track (credit)	*10,246.16*	
Bloom to Jamestown, North Dakota, second main track	31,344.16	
Billings to Laurel, Montana, second main track	24,667.48	
Mile post 73 to Yardley (Spokane), Washington, second main track	27,253.23	
Lester to Easton, Washington, grade revision and double track	119,053.01	
Tenino to Vancouver, Washington, grade revision and double track	*Cr. 127,467.39*	
Sundry double track adjustments in Montana	911.50	
		$3,703,285.94
		$3,765,125.94
ADDITIONS AND BETTERMENTS:		
Right of way and station grounds	$90,189.84	
Real estate	2,880.30	
Widening cuts and fills	139,234.60	
Protection of banks and drainage	81,190.23	
Grade reduction and change of line	436,157.78	
Tunnel improvements	44,316.23	
Bridges, trestles and culverts	171,578.35	
Increased weight of rail	554,922.45	
Improved frogs and switches	14,063.51	
Track fastenings and appurtenances	315,209.56	
Ballast	254,685.97	
Additional main tracks	31,976.01	
Sidings and spur tracks	464,648.86	
Terminal yards	755,363.82	
Fencing right of way	15,126.30	
Improvement of crossings, under and over grade	*2,275.53*	
Elimination of grade crossings	80,704.15	
Interlocking apparatus	46,134.03	
Block and other signal apparatus	350,959.89	
Telegraph and telephone lines	38,576.83	
Station buildings and fixtures	434,783.20	
Roadway machinery and tools	1,611.65	
Shops, enginehouses and turntables	645,859.51	
Shop machinery and tools	299,193.00	
Water and fuel stations	366,079.83	
Dock and wharf property	14,295.02	
Snow and sand fences and snowsheds	12,478.09	
Other additions and betterments	39,226.53	
		$5,699,170.01

NEW EQUIPMENT:	Total Expenditure.	Less used from Reserves.	Charged Capital
Locomotives	$2,055,879.30	$663,309.94	$1,392,569.36
Passenger train cars	35,450.63	21,037.89	14,412.74
Freight train cars and work cars	6,077,442.96	392,399.26	5,685,043.70
	$8,168,772.89	$1,076,747.09	7,092,025.80
Total for the year			$16,556,321.75

In addition to the above amount added to the cost of the Northern Pacific Estate, advances have been made during the year to sundry companies, as follows:

Midland Railway Company of Manitoba*	Cr.	$1,497,116.91
Clearwater Short Line Railway Company		4,970.01
Missouri River Railway Company		233,185.60
Western Dakota Railway Company		202,098.21
Connell Northern Railway Company	Cr.	78,551.46
Shields River Valley Railway Company		5,153.02
Olympia Peninsular Railway Company		15.25
Kennewick Northern Railway Company		63.04
Bear Creek & Western Railway Company		91,183.89
Camp Creek Railway Company		6,029.24
Cuyuna Northern Railway Company		156,779.67
Missoula & Hamilton Railway Company		55,974.96
Gilmore & Pittsburg Railway Company	Cr.	104,579.17
Spokane, Portland & Seattle Railway Company		862,688.77
Northern Pacific Terminal Company of Oregon, account of Sinking Fund		38,609.86
Net reduction during the year		$23,496.02

* Capital stock has been received from the Midland Railway Company of Manitoba for advances made to it during last year and previous years; hence the credit.

RESERVE FOR ACCRUED DEPRECIATION OF EQUIPMENT.

Credit balance, reserve for accrued depreciation July 1, 1912.		$11,201,799.33
Credits during year ending June 30th, 1913:		
From charges to operating expenses and outside operations:		
Maintenance of equipment, depreciation...	$1,156,209.51	
Maintenance of equipment, renewals.....	251,854.95	
Outside operations, depreciation.....	91,519.56	
From salvage	483,994.44	
From equipment sold and destroyed.....	54,381.23	
		2,037,959.69
		$13,239,759.02
Less equipment retired:		
Locomotives	$663,309.94	
Passenger cars	21,037.89	
Freight cars	359,831.76	
Miscellaneous equipment	32,567.50	
		1,076,747.09
Credit balance June 30, 1913.....		$12,163,011.93

CAPITAL STOCK AND DEBT.

There has been no change in the amount of capital stock outstanding during the year, viz.: $248,000,000.00.

Changes in Bonded Debt were as follows:

Prior Lien bonds issued under Article One, Section 4 of Mortgage	$1,500,000.00
Deduct Prior Lien bonds purchased and cancelled under Article Eight, Section 2 of Mortgage	513,000.00
Increase in bonded debt	$987,000.00

During the year bonds held as Treasury Securities (including part of Prior Lien bonds issued as stated above) were sold to provide funds for general construction purposes—

Prior Lien bonds	$4,506,000.00
Northern Pacific-Great Northern Joint bonds	868,000.00
Chicago, Burlington & Quincy General Mortgage bonds.	3,350,000.00
Great Northern Ry. Co. First and Refunding bonds	1,000,000.00
Southern Pacific Ry. Co. First Refunding bonds	171,000.00
Atchison, Topeka & Santa Fe Ry. Co. Trans. Short Line bonds	220,000.00
Oregon Short Line Ry. Co. Refunding bonds	100,000.00
Colorado & Southern Ry. Co. Refunding and Extension bonds	100,000.00
Northern Pacific Terminal Company bonds	2,000.00
	$10,317,000.00

NEW LINES, DOUBLE TRACK, GRADE REVISIONS AND LINE CHANGES.

WISCONSIN.

Superior:

A branch line has been constructed from the present main line in Newton Avenue, Superior, to the waters of Superior Bay near the mouth of the Nemadji River, to serve the ore dock being constructed by the Cuyuna Dock Company, a distance of 1.8 miles.

The ore dock is a steel and concrete structure with 102 pockets of 35,000 tons capacity.

MINNESOTA.

Cuyuna Northern Railway.

The line north of the main line of the Northern Pacific Railway has been completed. The actual length of track constructed is 5.16 miles.

Minnesota & International Railway, Leaks Cut Off, 5.8 miles.

A change of line from Leaks to Brainerd is under construction. This connects with the Northern Pacific main line a short distance west of the Mississippi River bridge at Brainerd, and when completed will enable the Minnesota & International Railway (a controlled line) to cross the river on this bridge, abandoning its present crossing of the river and a part of its old line between Leaks and Brainerd.

Twin Valley to Heiberg. Change of Line, 3.04 miles.

This improvement consists in revision of line between Twin Valley and Heiberg on the Red River Branch, providing a 0.3 per cent grade eastbound with no adverse grade westbound, reducing distance 2,204 feet and eliminating 396 degrees of curvature. The present line has 1.20 per cent grades in both directions.

NORTH DAKOTA.

Western Dakota Railway.

The grading for the line from Stanton westwardly, a distance of 62 miles, is in progress, and will be completed this year.

Bloom to Jamestown. Second Main Track.

Completed in November, 1912. The length of track laid is 4.85 miles.

WASHINGTON.

Moab to Trent, Grade Revision, 2.93 miles.

The minor grade revisions have been completed.

Spokane Grade Separation.

A separation of grades in the city of Spokane was commenced in January, 1913, under contract, and was continued until April 26, 1913, when, owing to injunction suits, the work was entirely shut down and contract cancelled.

Easton to Lester.

The construction of a second track, including line changes, over the Cascade Mountains, between Easton and Lester, a distance of approximately 15 miles has been authorized. Work was commenced in December, 1912, and is progressing satisfactorily.

Weston to Maywood, Revising Grade and Raising Bridges.

This work has been completed.

Tenino to Vancouver, Second Main Track, Line and Grade Changes.

This work is completed.

Point Defiance Line, Tacoma to Tenino.

This work has been steadily in progress during the year, and grading is well advanced toward completion. The excavation of the long tunnel is finished and the tunnel is completely lined for 2,810 feet. The total length of the tunnel is 4,380 feet.

Track will not be laid until next spring.

Wilkeson Branch, Change of Line, 0.9 mile.

This work has been completed.

Interbay, Ballard (Suburbs of Seattle), Change of Line and Grade.

The work of grading and tracklaying is in progress. The foundation for the piers of the bascule bridge across Salmon Bay Waterway has been completed.

Lake Union Line, Seattle.

This spur, and the Terry Avenue extension of same, have both been completed. The actual length of track constructed on the Lake Union Line is 2.38 miles, and the extension is 0.53 mile long.

Grade Revisions and Changes of Line North of Seattle.

For the purpose of improving the line north of Seattle, grade revisions and changes of line have been authorized, and undertaken, at and near the crossing of Pilchuck river, at and near Thornwood Hill, Sedro Woolley to Wickersham and around McMurray Lake, and McMurray to Montborne; grade revisions being on the basis of a 0.6 per cent grade southbound and 1.0 per cent northbound, Snohomish to Sumas; also a connecting line between Edgecomb and Kruse's Spur on the Great Northern Railway, a distance of 3.8 miles to enable the use of the Great Northern Line between the latter point and Delta, where a connection will be made with the Everett Branch of the Northern Pacific, thus avoiding the heavy grades on the existing Northern Pacific line between Snohomish and Edgecomb. Work on the various line changes and grade revisions is in progress, and it is expected to have the grading completed this fall.

GENERAL.

After the close of the business year, Mr. Howard Elliott, President of the Company since 1903, retired from the company's service to become official head of the New York, New Haven & Hartford Railroad and associated and controlled properties. In accepting Mr. Elliott's resignation your Board adopted and placed on record the following resolution, expressing appreciation of Mr. Elliott's services, and regret at his departure:

RESOLVED: That in accepting Mr. Howard Elliott's resignation from the presidency of the Company, the Board desires to express to him its great appreciation of the ability and devotion which have marked his long and successful administration of the Company's affairs, and its wishes for his success in every future undertaking. His associates in the Board of Directors experience the deepest regret at the severance of a relation in which he has deservedly won their affectionate regard.

The following figures show, in a comprehensive way, the important growth of your properties, and of their business, during Mr. Elliott's administration:

	1903.	1913.	*Increase.*
Miles of track owned	7,074.93	9,476.44	2,401.51
Gross Income	$47,254,654	$77,610,832	$30,356,178
Op. Expenses and Taxes	25,453,526	48,672,326	23,218,800
Surplus Income	21,801,128	28,938,506	7,137,378
Accumulated surplus	9,725,655	83,699,770	73,974,115

At the same meeting which accepted Mr. Elliott's resignation from the presidency, the Company's By-Laws were amended, creating the office of Chairman.

The changes in the Company's official organization, consequent upon Mr. Elliott's retirement, and the creation of the office of Chairman, are indicated in the list of officers at the head of this report.

In June of this year, the Minnesota Rate Cases, mentioned in previous annual reports, in one of which cases your company was a party, and which have been pending in the Federal Courts since 1907, were decided by the Supreme Court. While declining to enjoin the state rates, in their application to your company, and to the other large companies operating railways in Minnesota, the Supreme Court in the clearest way upheld the contention of the companies that their railways are entitled to the same protection by the Constitution of the United States, from legislative action preventing them from earning a fair return upon a fair valuation of their properties, to which other private property is admittedly entitled. The judgments of the Court did not finally dispose of the right of the companies to litigate the question of the validity of the state rates, but expressly reserved to the companies the right to bring fresh suits, and make additional proofs upon the subject, in their discretion. While technically the large companies were losers in these suits, the clear recognition by the courts of the rights of the owners of railways, will undoubtedly have valuable influence in deterring future action by public authorities reducing the revenues of such properties below what would be a fair and reasonable return upon their valuation.

At a recent session Congress has directed the making by the Interstate Commerce Commission of a valuation of all the interstate railways of the United States. This work, if accurately and fairly done, as undoubtedly it will be, must prove of great value to the railways, as it will for the first time definitely establish the chief basis for determining what would be a fair return upon the property, which the owner has the constitutional right to earn.

The railways of the country, including your company, are freely co-operating with the Interstate Commerce Commission, in order to facilitate as much as possible the work, and to secure correct and reliable valuations. For your company, the task in this connection will be relatively small; as, in preparation of the evidence in the Minnesota Rate Cases, and since, all material data regarding the physical valuation of your properties have already been collected and reduced to inventory form. It is planned to hereafter make the property valuations a part of the permanent records of your company.

By order of the Board of Directors,

JULE M. HANNAFORD, *President.* W. P. CLOUGH, *Chairman.*

INCOME ACCOUNT.

FOR THE FISCAL YEAR ENDING JUNE 30, 1913.

Dr.			*Cr.*		
To			By		
OPERATING EXPENSES:			OPERATING REVENUE:		
Maintenance of way and structures	$10,188,053.94		Freight	$52,270,685.94	
Maintenance of equipment	8,532,671.74		Passenger	15,808,035.75	
Traffic expenses	1,309,800.81		Other	4,597,417.03	
Transportation expenses	23,569,379.23				$72,676,138.72
General expenses	1,073,392.43		OUTSIDE OPERATIONS:		
		$44,673,298.15	Sleeping cars	$287,118.19	
TAXES:			Parlor and observation cars	44,655.98	
State and County	$3,825,044.92		Dining and cafe cars (Deficit)	*135,222.50*	
U. S. Government corporation tax	173,983.16		Restaurants	112,066.86	
		3,999,028.08	Stock yards	201.75	
INTEREST AND RENTALS:					308,820.28
Interest on funded debt	$6,837,685.00		RENTALS RECEIVED		2,232,902.32
Rentals of leased roads and terminals	512,861.00		HIRE OF EQUIPMENT		315,288.14
Other rentals	24,442.22		MISCELLANEOUS INCOME		25,267.47
		7,374,988.22	DIVIDENDS AND INTEREST:		
DIVIDENDS:			On securities owned and interest on deposits		2,052,415.34
Nos. 60, 61, 62 and 63		17,360,000.00			
APPROPRIATION TO COVER SUNDRY CLAIMS		750,000.00			
BALANCE CARRIED TO PROFIT AND LOSS		3,453,517.82			
		$77,610,832.27			$77,610,832.27

NORTHERN PACIFIC RAILWAY COMPANY.

GENERAL BALANCE SHEET, JUNE 30, 1913.

ROAD AND EQUIPMENT (Northern Pacific Estate):			CAPITAL STOCK—Common		$248,000,000.00
Cost to June 30, 1907—			MORTGAGE, BONDED AND SECURED DEBT:		
Road, lands, etc	$318,333,961.80		Mortgage Bonds (page 30)	$192,352,500.00	
Equipment	37,295,670.07		Collateral Trust Bonds (Northern Pacific-Great Northern joint) total issue....$215,227,000.00		
		$355,629,631.87	Less, Great Northern Railway Company's proportion	107,613,500.00	
Cost since June 30, 1907—				107,613,500.00	
Road (less Land Department net proceeds)	$53,219,712.15				299,966,000.00
Equipment	19,075,528.57				
Land Department current assets	5,691,525.51				
		77,986,766.23			
		$433,616,398.10			
Less reserve for accrued depreciation	12,163,011.93	$421,453,386.17			
SECURITIES:					
Securities of proprietary, affiliated and controlled companies—pledged, viz.:					
This Company's one-half of $107,613,500 stock of Chicago, Burlington & Quincy Railroad Company to secure $215,227,000 joint bonds made and issued by this Company and the Great Northern Company to pay for said stock, costing	$109,114,809.76				
Securities of proprietary, affiliated and controlled companies—unpledged	47,757,255.94				
		156,872,065.70			
OTHER INVESTMENTS:					
Advances to proprietary, affiliated and controlled companies for construction equipment and betterments	$22,642,066.55				
Miscellaneous investments, physical property	1,755,183.62				
		24,397,250.17			
Total Capital Assets		$602,722,702.04	*Total Capital Liabilities*		$547,966,000.00
WORKING ASSETS:			WORKING LIABILITIES:		
Cash	$3,457,972.47		Traffic and car service balances due other companies	$1,249,439.69	
Securities issued or assumed—held in treasury	13,560,500.00		Audited vouchers and wages unpaid	8,518,719.11	
Marketable securities (other than those issued or assumed)	12,065,079.54		Miscellaneous accounts payable	80,552.09	
Loans and bills receivable	4,516,323.90		Matured interest, dividends and rents	1,183,703.25	
Traffic and car service balances due from other companies	1,057,967.54		Other working liabilities	459,618.18	
Net balance due from agents and conductors	968,420.95				11,492,032.32
Miscellaneous accounts receivable	4,314,709.20		ACCRUED LIABILITIES NOT DUE:		
Material and Supplies	9,584,221.16		Unmatured interest. dividends and rents payable	$4,845,576.69	
		49,525,194.76	Taxes accrued (partly estimated)	2,169,377.01	
ACCRUED INCOME NOT DUE:					7,014,953.70
Unmatured interest, dividends and rents		160,185.32	DEFERRED CREDIT ITEMS:		
DEFERRED DEBIT ITEMS:			Other deferred credit items		2,237,285.06
Advances and working funds	$74,128.10		APPROPRIATED SURPLUS:		
Special deposits (with trustees of mortgages)	469,873.38		Invested in other reserve funds (Insurance Fund)	$5,651,777.78	
Cash and securities in sinking and redemption funds	207,957.93		Reserve for payment of sundry claims	750,000.00	
Cash and securities in Insurance Fund	5,651,777.78				6,401,777.78
		6,403,737.19	PROFIT AND LOSS		83,699,770.45
		$658,811,819.31			$658,811,819.31

PROFIT AND LOSS ACCOUNT.

JUNE 30, 1913.

To		By	
Discount and commission on treasury securities sold	$306,844.83	Balance to credit June 30th, 1912, as per annual report	$80,260,438.07
Settlement of judgment arising out of the construction of the Coeur d'Alene Railway in 1887	109,426.18	Balance of Income for year ending June 30, 1913, brought down	3,453,517.82
Property abandoned, chargeable to Profit and Loss	73,845.01	Adjustment of accounts in connection with construction of Midland Railway of Manitoba	402,841.10
Balance of sundry accounts	10,151.81	Profit in sale of operating property	54,910.46
BALANCE	83,699,770.45	Unclaimed wages—3 years old	28,330.83
	$84,200,038.28		$84,200,038.28
		By BALANCE to credit of Profit and Loss, as per balance sheet.	$83,699,770.45